

# HEARTLAND STATE TRAIL EXTENSION PARK RAPIDS TO MOORHEAD MASTER PLAN



Minnesota Department of Natural Resources  
Division of Parks and Trails  
June 2011



The Minnesota Department of Natural Resources, Parks and Trails Division would like to thank all who participated in this master planning process. Many individuals and groups in trail communities have been working for many years to help establish this trail. The Heartland Trail Association has played an active role in generating interest in local communities. Assistance from local officials and citizens in the cities of Park Rapids, Frazee, Wolf Lake, Detroit Lakes, and Hawley is greatly appreciated. Many DNR staff, city and county officials, trail association members and local citizens contributed their time and energy to the planning process as well.

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June 2011, Minnesota Department of Natural Resources.

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*June 2011*



# Minnesota Department of Natural Resources

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## Minnesota Department of Natural Resources, Division of Parks and Trails Approval of the Heartland State Trail Extension Master Plan

Minnesota Statutes, Section 86A.09, requires that a master plan be prepared for units of Minnesota's outdoor recreation system, including state trails. This master plan addresses the extension of the Heartland State Trail from its existing terminus in Park Rapids to the City of Moorhead, a distance of approximately 85 to 100 miles, depending on the route selected. The trail extension was authorized in 2006, in Minnesota Statutes, Section 85.015, Subdivision 12.

The Minnesota Department of Natural Resources interdisciplinary team developed the Master Plan, with the assistance of the Heartland Trail Association and citizens' committees from cities and counties along the proposed route. The plan received input and comments from the public, including three public open houses and additional meetings with cities and regional agencies.

The Heartland State Trail Extension Master Plan has been reviewed by the DNR, Division of Parks and Trails and by the Northwest Region Management Team.

I have reviewed this master plan and determined that it complies with Minnesota Statutes 86A.09 and find it provides for the administration of the extension of the Heartland State Trail in a manner that is consistent with the purpose for which the trail was authorized.

A handwritten signature in purple ink, appearing to read "Tom Landwehr".

Tom Landwehr, Commissioner  
Minnesota Department of Natural Resources

A handwritten date in purple ink, "6/7/2011".

Date



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## **Executive Summary**

The Heartland State Trail is one of the oldest rail-trails in Minnesota, legislatively authorized in 1974. The Heartland State Trail Extension was legislatively authorized in 2006. The trail currently extends from Park Rapids to Cass Lake, a distance of 49 miles. The Heartland State Trail Extension will link the current western end of the trail at Park Rapids to the city of Moorhead, a distance of approximately 85 to 100 miles, depending on the selected route. Specific alignments have not been determined for the trail, but the intent of this plan is to connect the communities of Park Rapids, Wolf Lake, Frazee, Detroit Lakes, Audubon, Lake Park, Hawley, Glyndon, Dilworth and Moorhead, as well as the Smoky Hills State Forest, Buffalo River State Park, and other natural and recreational resources within the trail corridor.

The following general criteria were identified to guide the location of the trail:

- Work with willing landowners and road authorities to acquire right-of-way that showcases features of the landscape.
- Minimize trail user exposure to vehicular traffic.
- Minimize impact on wetlands.
- Avoid negative impacts on rare and endangered species, and avoid fragmentation or disturbance of significant native plant communities.
- Maximize trail accessibility.

### **Recommended Trail Uses**

The Heartland State Trail Extension is a multi-use trail and will allow all the uses allowed on the existing Heartland State Trail, including bicycling, hiking and walking, running/jogging, in-line skating/skate skiing, cross-country skiing, dog walking, access for fishing, and environmental education/ interpretation. Horseback riding, snowmobiling and hunting will be generally allowed except where regulated or prohibited by community ordinance or state park rules and regulations. Limitations of width, landowner agreements and land use restrictions may dictate that not all recommended uses can be accommodated at all times for the entire length of the trail. Additional alternative trail alignments will be pursued as necessary to accommodate proposed uses. Trail development will be accessible to people with disabilities wherever possible.

### **Trail Management**

The plan contains recommendations for maintenance, enforcement, and interpretation of natural and cultural resources. Trail maintenance is critical to provide and sustain the quality experience trail users expect and appreciate. The plan recommends that an adequate level of enforcement be provided via a multifaceted approach, to help maintain a safe and secure trail environment. It

is also a goal to encourage trail users to understand and obey trail rules, respect other trail users and respect adjoining properties.

**Natural and Cultural Resources**

The ecological value of the trail corridor will be enhanced wherever possible through intensive resource management. The vegetation within the trail right-of-way will be enhanced and managed to provide a healthy diversity of native woodland, wetland, and prairie communities for wildlife habitat and for the enjoyment of trail users and adjoining landowners. Native flowers, grasses, trees and shrubs that are consistent with the natural plant communities of the area will be planted and managed. Areas disturbed during construction will be seeded with locally-sourced native plants. Cultural resources will be preserved and managed for interpretive purposes. Trail users will have opportunities to experience the history of the area through existing historical and proposed interpretive sites.

**Trail Extensions**

The plan recommends one trail extension, from Park Rapids to Itasca State Park. The concept of a link to Itasca was first raised in the original 1979 Heartland State Trail Master Plan, as well as the 1994 Paul Bunyan Trail Master Plan, as part of a potential regional bike route connecting Park Rapids with Itasca, Bemidji, Laporte and Walker. This link would encourage bicycle and other non-motorized access to this iconic state park by providing a much safer route than the existing highways.

# 1. Planning Process, Purpose and Scope

## Goals and Objectives of the Planning Process

Master planning for the Heartland State Trail Extension was conducted in order to achieve the following goals and objectives:

**Goal 1:** *To develop a unified, coordinated vision for the trail to serve as a blueprint to guide the development of the trail through the process of right-of-way acquisition, development, and maintenance.*

*Objectives:*

- Identify potential interpretive themes;
- Outline basic design concept; and
- Identify allowable trail uses and user groups.

**Goal 2:** *To identify opportunities and constraints for the trail, and to address any potential conflicts or problems through an open, fair public participation process.*

*Objectives:*

- Hold public workshops, circulate copies of the draft plan, and solicit comments from potential trail users, residents of the communities it passes through, landowners, and government officials;
- Assess the impacts of the trail in order to inform the decision-making process;
- Support outreach efforts, partnerships, and processes that will help to carry out the plan.

**Goal 3:** *To inventory and to organize information on existing conditions on and around the trail area to help trail supporters make the project a reality.*

*Objectives:*

- Inventory the natural and cultural resources;
- Assess demographic information relating to potential user groups;
- Assess demographic information relating to economic development and tourism;
- Identify potential connections to other recreational opportunities, present and future;
- Identify community trail plans so the trail can be integrated into communities.

**Goal 4:** *To identify potential corridors so that the process of securing the trail alignment can begin.*

### **Department of Natural Resources Mission**

*Our mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.*

### **Division of Parks and Trails Vision**

*Our vision is to create unforgettable park, trail, and water recreation experiences that inspire people to pass along the love for the outdoors to current and future generations.*

**Objective:**

- Using aerial photography, property ownership information, field visits, community meetings, public workshops, and the resource inventory, identify opportunities and constraints to outline potential corridors for each segment.

**Goal 5:** *To provide a clear, compelling rationale for funding and constructing the trail.*

**Objective:**

- Explain how the Heartland Trail Extension meets the criteria for trails outlined in Minnesota Statutes 86A.05, Subdivision 4.

## **Trail Planning Process**

The diagram on page 6 outlines the planning process used in developing this master plan.

### **Outreach**

During the initial phase of the planning process in 2008 a series of five open houses were held to solicit input for the master plan and to answer questions. See Appendix A for a summary of the meeting results.

Outcomes of these initial meetings included:

- Increased awareness of the trail through good media coverage – newspaper, radio and television
- Demonstrated support for the trail
- Identification of a regional system
- Identification of additional partners
- Plans for community trail systems emerging to address interrelationship of the state trail and the communities
- Identification of local “experts”
- Strategy for addressing specific trail alignments emerged – formation of local committees to identify potential trail alignments and contact landowners
- Continuing work by local committees on trail alignments and landowner contacts.

A second series of three open houses was held in October-November 2010 to review the draft plan. DNR staff also met with committees from several cities and counties and with the Heartland Trail Association. The draft plan was available on the DNR website for a 30-day public comment period. The comments we received have been considered in developing the final draft plan, and are summarized in Appendix A.

## Trail Planning Process Chart

### Who's Involved

- Trail User Groups
- Community Park, Trail and Economic Development Committees
- Regional Development Commissions
- DNR Resource Managers
- Community Leaders
- Scenic Byways Managers
- Elected Officials
- Other Agencies
- Citizens
- Adjacent Landowners
- Trail Users

### Steps in the Process

- Information Gathering
  - Natural and Cultural Resource Inventory
- Issue Identification
  - Opportunities and Constraints



#### Develop:

- Vision for the Trail
- Goals for the Trail
- Design Concept



Formulate Trail Alignment, Trail Development and Management Recommendations



Prepare Draft Plan



Draft Plan Review  
Public Workshops  
Evaluation and Adjustment  
Prepare Final Plan



Trail Plan Adopted – Implementation Begins

## Guiding Principles for Sustainable Trails

Guiding principles for ecologically sustainable trails provide the underlying rationale for actions related to protecting, restoring, and managing natural environments associated with trail development. There are seven core principles:

1. Avoid sensitive ecological areas and critical habitats.
2. Develop trails in areas already influenced by human activity.
3. Provide buffers to protect sensitive ecological and hydrologic systems.
4. Use natural infiltration and best practices for stormwater management.
5. Provide ongoing stewardship of the trails and adjoining natural systems.
6. Ensure that trails remain sustainable.
7. Formally decommission and restore unsustainable trail corridors.<sup>1</sup>

Applications of these principles will minimize the impact of trails on natural resources and sensitive ecological systems. Importantly, the strict application of these guiding principles has to be balanced against the need to locate trails where they will be of high recreational value to the targeted users, who often want to be close to nature, enjoy beautiful scenes, and observe wildlife. This is an important consideration and underscores the need for resource managers, trail designers, and other interested individuals to work together to determine which values are the most important for any given trail alignment.

## Compliance with Legislative Authorization

The Heartland Extension was legislatively authorized in 2006 (Minnesota Statutes, Chapter 85.015, Subd. 12). The map on page 10 depicts the legislatively authorized state trail system.

**Subd. 12. Heartland Trail, Clay, Becker, Hubbard, and Cass Counties. (a)**

The trail shall originate at Moorhead in Clay County and extend in an easterly direction through Detroit Lakes in Becker County to mile post 90.92 at Park Rapids in Hubbard County; thence in an easterly direction along the Burlington Northern Railroad right-of-way through Walker in Cass County; thence in a northerly direction along the Burlington Northern Railroad right-of-way to Cass Lake in Cass County, and there terminate.

(b) The trail shall be developed primarily for riding and hiking.

State trails are one unit of Minnesota's outdoor recreation system established by the Legislature. In 1975, the Legislature enacted the Outdoor Recreation Act

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<sup>1</sup> MN DNR, *Trail Planning, Design and Development Guidelines*. 2007.



(ORA; Minnesota Statutes, Chapter 86A.05, Subdivision 4, and Chapter 85.015). This act established an outdoor recreation system classifying all state-managed recreation lands into eleven components or “units”. The ORA requires that the managing agency prepare a master plan for the establishment and development of each unit. This master plan fulfills that mandate.

The Heartland State Trail Extension satisfies all of the criteria for state trail designation set forth by the Legislature in Minnesota Statutes, Chapter 86A.05, Subdivision 4. These criteria include:

*1. Permits travel in an appropriate manner along a route which provides at least one of the following recreational opportunities:*

*i. travel along a route which connects areas or points of natural, scientific, cultural and historical interest;*

There is a rich diversity of natural, scientific, cultural, and historical resources along the Heartland Extension trail corridor. The sampling below illustrates the variety of natural and cultural resources in the trail corridor.

**Park Rapids to Smoky Hills State Forest**

- Straight River - Designated trout stream
- Smoky Hills State Forest – Rolling terrain, wetlands, and old growth forest

**Smoky Hills to Detroit Lakes**

- Amish farm country
- Dead Horse Creek– Designated trout stream
- Access to the Otter Tail River, a Minnesota Water Trail – boating and fishing opportunities
- Community of Frazee – historical and cultural attractions
- Community of Detroit Lakes – access to Detroit Lake, Becker County Historical Society, community festivals

**Detroit Lakes to Hawley**

- Hamden Slough National Wildlife Refuge

**Hawley to Moorhead**

- Buffalo River State Park
- Bluestem Prairie Scientific and Natural Area – one of largest and highest quality prairies in the state
- Red River of the North
- City of Moorhead – historical, cultural resources, parks and recreation

*ii. travel through an area which possesses outstanding scenic beauty;*

Diverse, scenic landscapes are defining features of this trail. The Heartland State Trail Extension crosses three of the four major ecological provinces in Minnesota – the Eastern Broadleaf Forest, the Laurentian Mixed Forest, and the Prairie Parkland. More specifically, it crosses three subsections of the state’s ecological classification system – the Hardwood Hills, Pine Moraines and Outwash Plains, and the Red River Prairie. A subsection is a distinct landscape of Minnesota defined by vegetation, geology and other resource criteria.

Because the trail crosses three ecological provinces, trail users will experience a diversity of topography, plant communities, and land uses. The trail will connect people with prairie, forest and wetlands; beach ridges, hills, and flat terrain; lakes, rivers, and wetlands.

*iii. travel over a route designated to enhance and utilize the unique qualities of a particular manner of travel in harmony with the natural environment;*

The design guidelines of this plan were developed with slower modes of travel (e.g. walking, bicycling, jogging, and in-line skating) in mind. Features such as carefully designed vistas and views, variation in horizontal and vertical alignment, and attention to trailscape detailing will all be incorporated to enhance the trail user’s interaction with the natural environment.

*iv. travel along a route which is historically significant as a route of migration, commerce, or communication;*

Segments of the trail are located along the routes used by the Red River Oxcarts, most notably between Detroit Lakes and Frazee. The oxcarts transported goods from St. Paul to Winnipeg and returned to St. Paul with furs between 1820 and 1870. Many trail segments also reveal the role played by the railroads in shaping the landscape and establishing towns such as Audubon, Lake Park, Hawley and Glyndon.

*v. Travel between units of the state outdoor recreation system or the national trail system.*

The Heartland State Trail Extension will connect the existing Heartland State Trail to the Smoky Hills State Forest, to Buffalo River State Park, and to the Bluestem Prairie Scientific and Natural Area.

Two water trails, the Ottertail and the Red River of the North are connected by the trail. Both the Tamarac and Hamden Slough National Wildlife Refuges provide opportunities for migratory bird watching and wildlife observation in a prairie wetland ecosystem of native grass and wetlands.

The nationally designated North Country Trail will intersect the Heartland Extension, and portions may share the same corridor.

The potential for a connection to Itasca State Park, while not currently legislatively authorized, should be explored.

*2. Utilizes to the greatest extent possible consistent with the purposes of this subdivision, public lands, rights-of-way, and the like;*

Public land will be used when trail development is compatible with management objectives of the administering agency. State, county, and township road rights-of-way may also be used.

*3. Provides maximum potential for the appreciation, conservation and enjoyment of significant scenic, historical, natural or cultural qualities of the areas through which the trail may pass;*

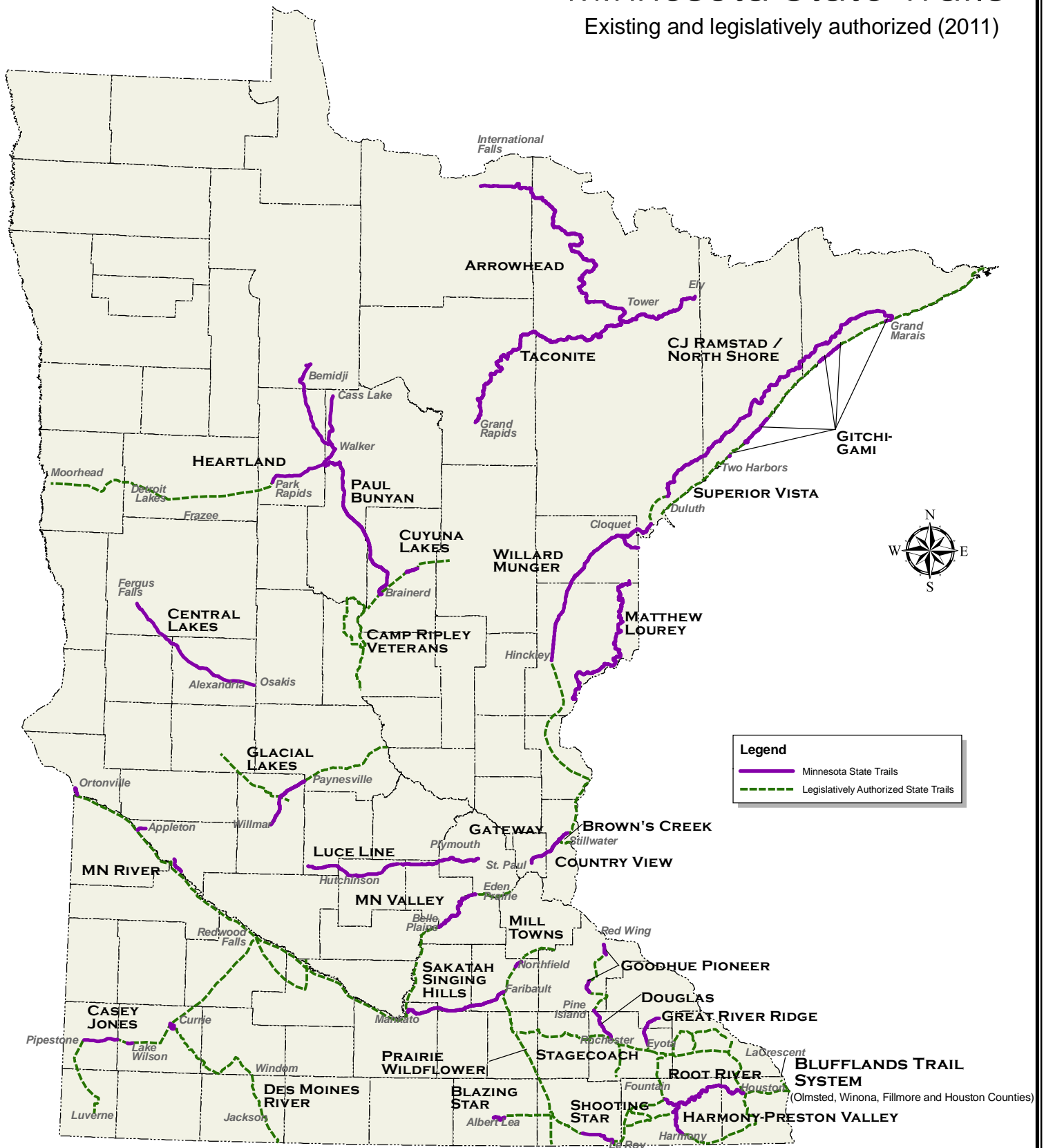
Overlooks, waysides, and interpretive facilities are proposed to increase trail users' appreciation and understanding of the natural and cultural resources of the area. Connecting these sites by trail or providing connections to these sites is a priority. There is potential for use of the trail for environmental education. Plant community restoration projects, wildlife habitat improvement projects, and the development of learning stations are potential projects that would benefit students and trail users.

*4. Takes into consideration predicted public demand and future use.*

This plan evaluates and uses current research on existing trail use, demand for trail opportunities, demographic data and recreational trends. An assessment of employment centers gives important information about potential trail use because they are important sources of trail users. Information gathered at public meetings and through other public participation techniques is also considered and incorporated into the plan.

## Minnesota State Trails

Existing and legislatively authorized (2011)



## **Vision and Goals for the Heartland State Trail Extension**

### **Vision**

The Heartland Extension will link Minnesota's western neighbors and northwestern border towns to the Heartland State Trail. Trail users will experience three distinct landscapes of Minnesota comprised of diverse resources – hardwood forest, pine moraines and outwash plains, and tallgrass prairie. Lakes, rivers, wetlands, prairie potholes, and numerous glacial landforms shape the landscapes along the trail. The trail will complement the Lake County Scenic Byway, adding a recreation amenity to the area and enhancing tourism. Local residents will experience positive health and economic benefits from the trail.

### **Goals**

This vision will be achieved through the following goals for the trail. The trail:

- ...will serve many different types of users throughout all seasons of the year;
- ...will increase awareness of the unique natural features of the Red River Prairie; Hardwood Hills; and Pine Moraines and Outwash Plains landscapes, including the Laurentian Divide, bird populations and other wildlife; the prairie, prairie lakes and wetlands, and a variety of forest types;
- ...will preserve and protect these environmental resources;
- ...will promote economic growth in the area by attracting new visitors year-round, attracting and retaining businesses, increasing tourism and linking tourist attractions;
- ...will provide a fun, safe, recreational resource for residents of all ages and interests, thereby benefiting their health and improving their quality of life;
- ...will serve as an alternate means of transportation in the region, connecting rural areas to town centers, commercial districts, parks, and schools, and reducing vehicle trips, thereby improving the environment;
- ...will connect to existing and future trail networks, provide a new link between cities and townships, and connect local, county and state parks and conservation areas; and
- ...will showcase the unique cultural themes of the area, including the Red River oxcart trails, logging, settlement history, tourism history, and the stories of Native Americans.

## 2. Recommended Trail Uses

The Heartland State Trail Extension will be a multi-use, multi-seasonal trail. In selected areas where the width of the right-of-way is limited, not all uses will be able to be accommodated. The trail is intended for pedestrian, equestrian, and non-motorized vehicle use only, except for snowmobiles in winter. The trail and its supporting facilities will be universally accessible to the greatest extent possible, as required by the Americans with Disabilities Act.

**Bicycling.** The length of the trail, the relative flatness of much of the alignment, the variety of landscapes, and the connections to tourist attractions make this trail appropriate for recreational and touring cyclists of all ages and abilities. The trail will add approximately 80 to 100 miles to the state inventory of 590 miles of paved state trails. Bicycling is recommended as a use along the entire length of the trail.

**Hiking and Walking.** On state trails, hiking or walking is second only to bicycling as popular low-impact cardiovascular fitness activities on state trails. Grades are likely to be moderate throughout the majority of the trail route, making it suitable for most people to walk and hike. Hiking and walking are recommended as uses on the entire length of the trail. (The use of electric wheelchairs, electric mobility scooters and similar devices is considered walking.)

**Running/Jogging.** Many people use the state trails for running and jogging. In addition to individuals who regularly use the trails for exercise, local school track and cross-country teams will be able to use this scenic trail for training purposes. Running and jogging are recommended uses along the entire length of the trail.

**Dog Walking.** Dog walking will be allowed along the entire length of the trail so long as dogs are leashed and owners properly dispose of pet wastes. State trail rules require all pets to be attended and restrained by a leash of not more than six feet in length.

**In-Line Skating/Skate Skiing.** While participation rates for in-line skating on state trails have declined, it remains a popular sport. In-line skating requires a paved trail with a smooth, wide surface such as asphalt. In-line skating is recommended as a use along the entire length of the trail.

**Horseback Riding.** There are over 1,200 miles of public horseback riding trails in the state, mainly within state parks and forests. Horseback riding is recommended as a use wherever it is feasible to develop a treadway parallel to the primary treadway. Horseback riding is not allowed within Buffalo River State Park.





**Snowmobiling.** Minnesota has over 21,000 miles of public snowmobile trails, serving over 254,000 registered snowmobiles (2010 figures). Besides the extensive grant-in-aid trail system, snowmobiles can legally ride in the right-of-way of roads unless prohibited by local ordinance and on frozen public waters. Snowmobiling is not allowed within Buffalo River State Park. Snowmobilers are interested in trail connections, quality of trail grooming, safety, and funding stability for their programs. As urban and suburban development expands, existing grant-in-aid routes may be lost. Snowmobiling is recommended as a use along the entire length of the trail except where restricted by local ordinance or park regulations.

**Hunting.** State trails allow hunting within the trail right-of-way during the legal hunting season, except where restricted by local ordinance. The current rule states: “No firearm or bow and arrow shall be discharged within the trail at any time, except for the purpose of lawful hunting during the period from September 15 to March 30 only. No rifle, shotgun with slug, or bow and arrow shall be discharged upon, over, or across the trail treadway at any time.”

Communities may restrict firearms or bow and arrow discharge, or trapping, by ordinance. These ordinances take precedence over state trail rules.

**Environmental Education/Interpretation.** Use of the state trail for environmental education, both for individual trail users and formal groups, is encouraged. Schools or organizations that wish to use a trail can work with DNR staff on specific projects. Interpretive displays on the environment and history of the trail can enhance the trail users’ experience.

**Accessibility.** The trail will be accessible to people with disabilities wherever possible. Grades in excess of 5% may be unavoidable in some locations where the trail must match a parallel transportation corridor or where one of the exceptions in the Federal accessibility guidelines is met.

**Fishing Access.** The trail will likely provide access to two designated trout streams, the Straight River and Dead Horse Creek, to the Otter Tail and Buffalo rivers, and to a variety of lakes and streams that may be used for fishing.

### **3. Trail Alignments**

For purposes of planning, the trail has been divided into five segments from east to west:

1. Park Rapids to Smoky Hills State Forest
2. Smoky Hills to Frazee (2A), or Smoky Hills to Detroit Lakes (2B)
3. Frazee to Detroit Lakes (the extension of 2A)
4. Detroit Lakes to Hawley
5. Hawley to Moorhead

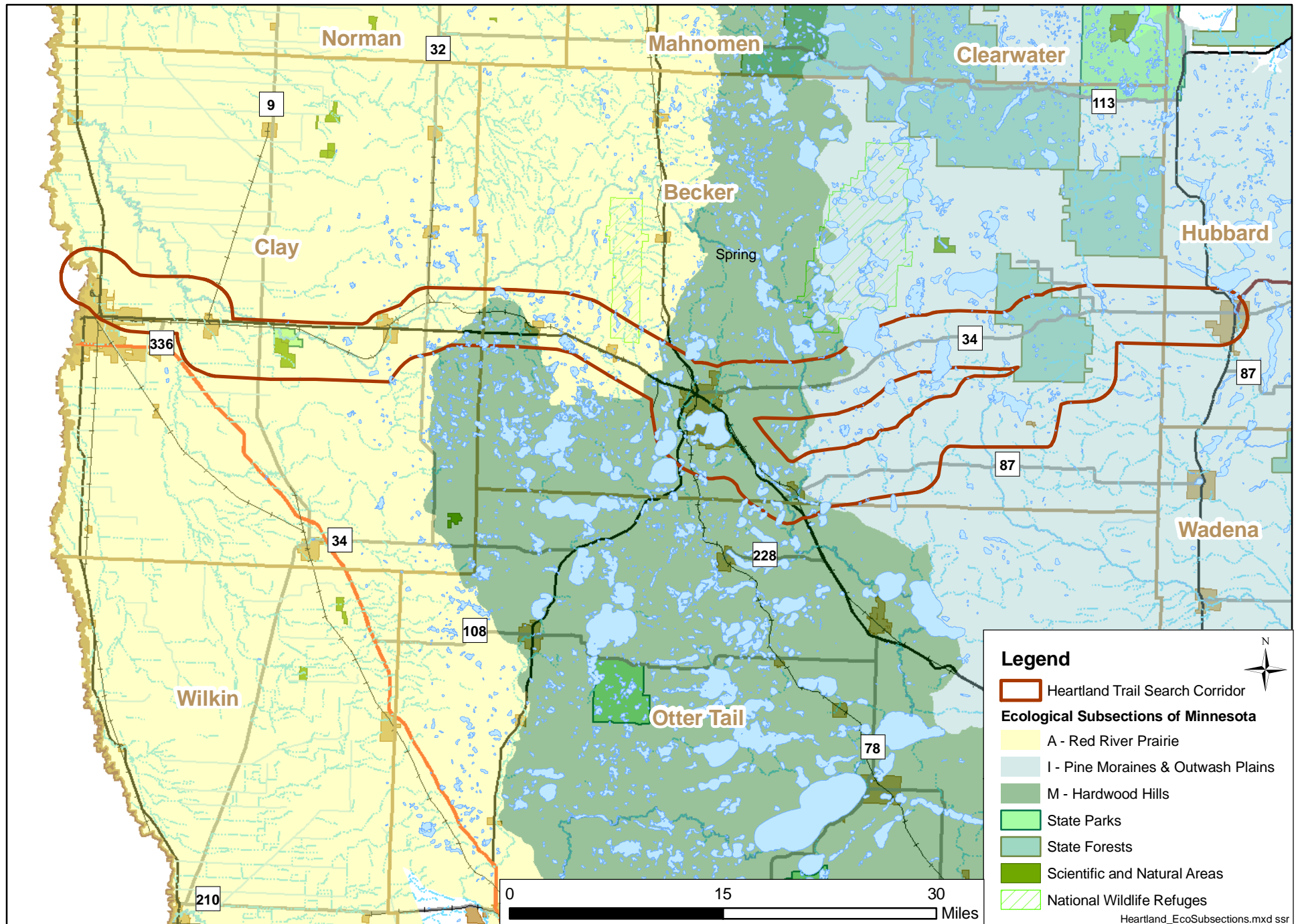
This section of the plan includes the following:

- A description of the highlights of each trail segment listed above, key connections, criteria for the location of the trail, and a description of conceptual trail corridor alternatives;
- Maps illustrating the trail corridor alternatives;
- A description and map of each community the trail will connect; and
- Descriptions and maps of the state parks, state forests, and other open space resources the trail will connect.

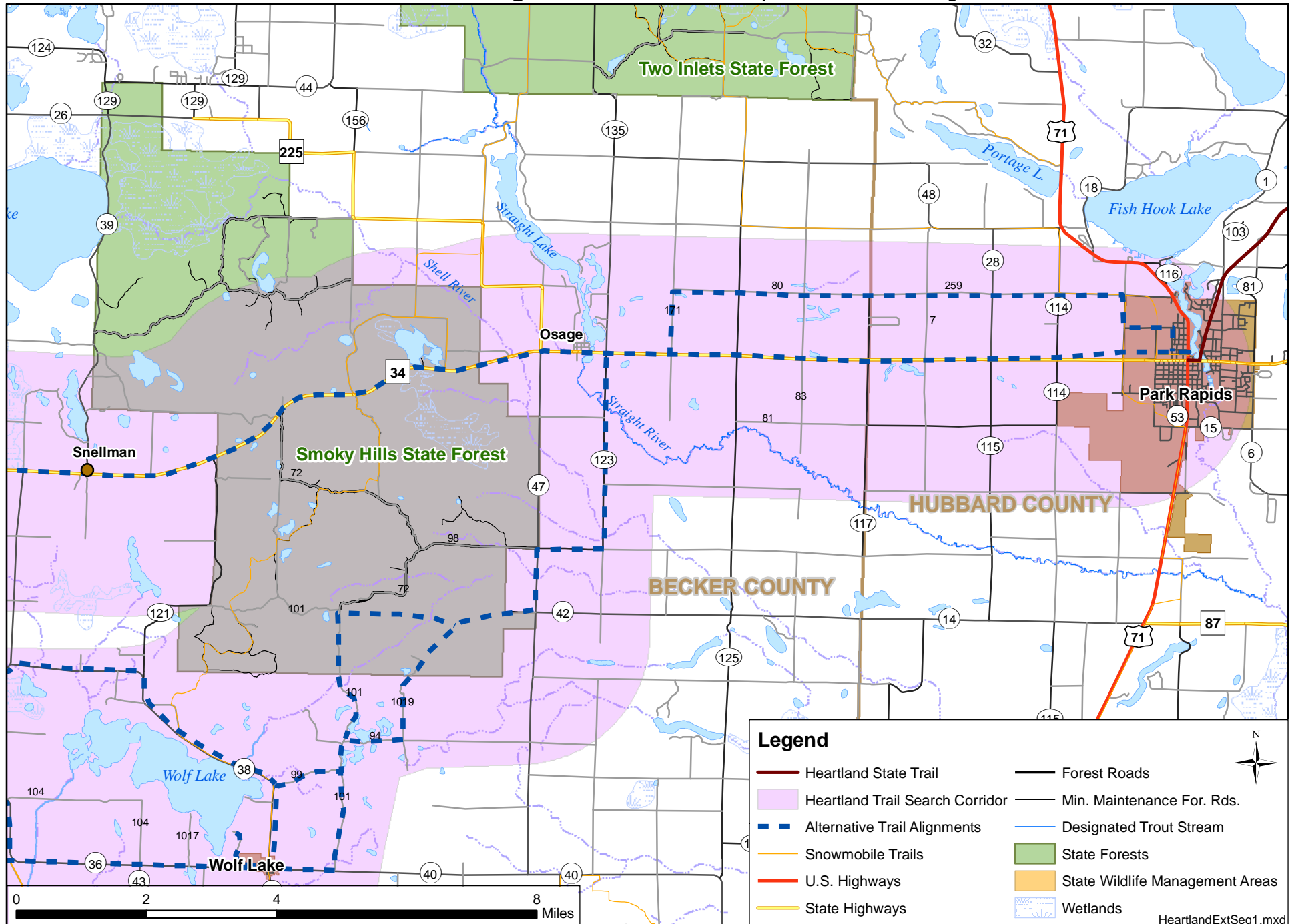
#### **Overview of the Trail Alignment**

The trail corridors illustrated in this section represent “search area” locations for specific trail alignments. Generally, the alignments follow road corridors. However, it is not envisioned that the trail will be located entirely in road rights-of-way. The goal is to find alignments that take trail users off road rights-of-way, providing access to natural and cultural amenities and to scenic routes that showcase the landscape. It will also be necessary to route the trail off road rights-of-way to avoid wetlands, high quality plant communities, and other sensitive resources. Land acquisition from willing sellers will be necessary in order to accomplish these goals.

# Heartland State Trail Extension: Overview and Ecological Subsections



# Heartland State Trail Extension, Segment 1: Park Rapids to Smoky Hills State Forest



## **Segment 1: Park Rapids to Smoky Hills State Forest**

### **Overview of the Alignment**

While exact alignments have not been determined, several options exist for this segment. An off-road trail is proposed to generally parallel State Highway 34 from Park Rapids to Osage. County and township roads provide various options for routing the trail through or around the Smoky Hills State Forest. This trail segment falls almost entirely within the Pine Moraines and Outwash Plains ecological region, which is characterized by relatively hilly topography and a mixture of upland forest, farmland and tallgrass prairie, with numerous lakes. Trail users will enjoy varied terrain and changing views, but the steep slopes can also create challenges for trail routing.

Features of this segment include the Lake Country Scenic Byway, the small town of Osage and the recreational opportunities of the Smoky Hills State Forest and the Straight River. The city of Park Rapids, current terminus of the Heartland State Trail, offers a variety of services and recreational opportunities.

### **Criteria for Trail Alignment**

- Work with willing landowners to acquire right-of-way that showcases features of the landscape.
- Minimize trail user exposure to vehicular traffic.
- Minimize impact on wetlands.
- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities.
- Avoid negative impacts on the resources of the Lake County Scenic Byway while taking advantage of and supplementing the byway's amenities.

### **Trail Alignment Options**

#### ***Park Rapids to Osage***

The Heartland State Trail Extension will likely follow or parallel State Trunk Highway (TH) 34 west out of Park Rapids. It is anticipated that the trail will be located in or near the right-of-way of TH 34 for much of the segment between Park Rapids and Osage. TH 34 is also part of the Lake Country Scenic Byway, a state scenic byway that extends 88 miles from Walker to Detroit Lakes and from Park Rapids to Itasca. Like the Heartland Trail route, the Byway uniquely spans three different types of geographic terrain, from coniferous forests to hardwood forests and glacial lake plains. Attractions along the Park Rapids-Detroit Lakes segment of the Byway include agri-tourism sites, tubing on the Otter Tail River, resorts and beaches, the Smoky Hills State Forest and the Tamarac National

Wildlife Refuge. The showy lady's slipper orchid (*Cypripedium*), Minnesota's state flower, can be seen along the Byway's edges in this area.

Opportunities will be explored to locate segments of the trail off the right-of-way to take advantage of scenic amenities or avoid impacts to wetlands, steep slopes, and other sensitive natural resources. (Construction within the road ditches of TH 34 is to be avoided wherever feasible, since it could potentially destroy or disrupt extensive populations of lady's slipper orchids. There are also established populations of remnant prairie plants between Park Rapids and Osage that should be avoided.)

A township road located one mile north of TH 34, 190th Street, could serve as an alternative corridor west out of Park Rapids for a short distance then connect with TH 34 on one of several north-south township roads. However, the number of residential driveways located along 190<sup>th</sup> Street near Park Rapids makes it less desirable as a trail alignment.

Osage is an unincorporated village (part of Osage Township) that is the gateway to the Smoky Hills State Forest. A store offers trail users the opportunity for food and beverages. The Straight River, a designated trout stream, flows through town, where a dam impounds water to form Straight Lake, extending north of town. A park provides a fishing pier, swimming beach, picnicking and water access. The historic Osage School, built in 1838, serves as a community center.

### ***Osage through Smoky Hills State Forest***

From Osage, one potential trail alignment could turn south following or paralleling the right-of-way of County Highway 47, then turn west to cross the Smoky Hills State Forest. The southeast corner of the state forest, where several off-highway vehicle (OHV) trails are located, seems to offer the best opportunities for the trail. As trail corridors are developed, care should be taken to avoid creating new cuts into state designated "Old Growth" stands in the state forest.

From the southern boundary of the state forest, the trail alignment could follow several local and county roads to the community of Wolf Lake.

If siting a trail through the Smoky Hills State Forest is not feasible, another alternative would follow County Highway 47 right-of-way south then follow 180<sup>th</sup> Avenue west to 510<sup>th</sup> Avenue.



**Straight Lake and fishing pier in Osage**



## Segment 1 Trail Communities and Connections

### Park Rapids

#### *History*

Park Rapids is located at the intersection of prairie, forests, lakes, and the Fishhook River. This rich and diverse natural resource base sustained Native American residents for centuries. Beginning in the 1700s, the settlement attracted a succession of fur traders, farmers, loggers, railroad developers, retailers, the tourism industry and other entrepreneurs. The rich soil of the prairie fueled agriculture, while the pine forests attracted the logging industry. The need to get crops and timber to market attracted the railroad, which opened up the area to the expansion of agriculture and settlement. The lakes, fish, and wildlife attracted the tourism industry in the early 1900s and it remains a mainstay of the economy today.

Park Rapids, which later became the county seat, was named by Frank Rice on July 4, 1881, for the park-like groves and the rapids in the Fishhook River. The first train to Park Rapids arrived in 1891, making a connection to Eagle Bend. The railroad was a vital asset to the early resort owners.

#### *The Community Today*

Park Rapids is the Hubbard County seat. The city's population was 3,276 according to the 2000 census, and was estimated at 3,494 in 2008. The impressive brick Classical Revival style county courthouse was built in 1900 and is located on the western edge of downtown. Visitors can learn about the county's past at the Hubbard County Historical Museum, located in the courthouse.



Numerous restaurants and lodging facilities are located within town and at nearby resorts. Park Rapids' interesting main street has restaurants, unique shopping, and a hospitable small town ambiance.

Recreational opportunities abound and festivals and events are scheduled throughout the year. There are several city parks scattered throughout the city. Heartland Park, the trailhead for the existing Heartland State Trail, is maintained by Becker County and contains the following amenities: picnic shelters,

playground equipment, horseshoe court, basketball court, ballfield, public water access, fishing pier, public swimming beach and restrooms.

The arts are also important in the community. The North Country Museum of Arts houses a variety of collections. Performances at the Jaspers Jubilee Theater, Northern Lights Opera and Long Lake Theater are scheduled from June through September.

Park Rapids serves as a gateway to many outdoor recreation experiences, including the existing 49-mile Heartland State Trail; Itasca State Park, located 21 miles north; 400 lakes within 25 miles; water trails for paddling on the Crow Wing and Otter Tail river; the Smoky Hills, Two Inlets, Badoura, Paul Bunyan and Huntersville state forests; the North Country National Scenic Trail; and the Tamarac National Wildlife Refuge.

### *Park Rapids Trail Alignment*

The recently completed Downtown Park Rapids Plan (2008) calls for a number of improvements that will help to link the Heartland Trail to the City's downtown and riverfront parks. The area between Red Bridge Park and Park Avenue is identified as a redevelopment focus area, "Red Bridge Landing." The plan calls for "a clear and attractive multi-purpose pathway from the Heartland Trail to 1<sup>st</sup> and Main Avenue" (downtown's main street). The plan shows the block redesigned with two large parking lots that could serve as a trailhead, several new commercial or retail buildings, and a proposed trail crossing with a pedestrian- or sensor-actuated signal to take the Heartland Trail across 1<sup>st</sup> Street/TH 34 (see the graphic below).



Red Bridge Landing, image from  
*Downtown Park Rapids Plan, RDG,*  
2008



The Red Bridge

The area just south of 1<sup>st</sup> Avenue/TH 34 between the riverfront and Park Avenue (TH 71) is identified as the “Third Street Promenade” redevelopment focus area. The plan calls for Third Street to be redeveloped as a “complete street” linking the riverfront to Main Avenue with sidewalks, bicycle lanes and generous landscaping. A new retail building and urban townhouses would be developed next to Depot Park. The plan recommends that the Heartland Trail continue south to a redesigned Depot Park and from there to 5<sup>th</sup> and Gilbert.

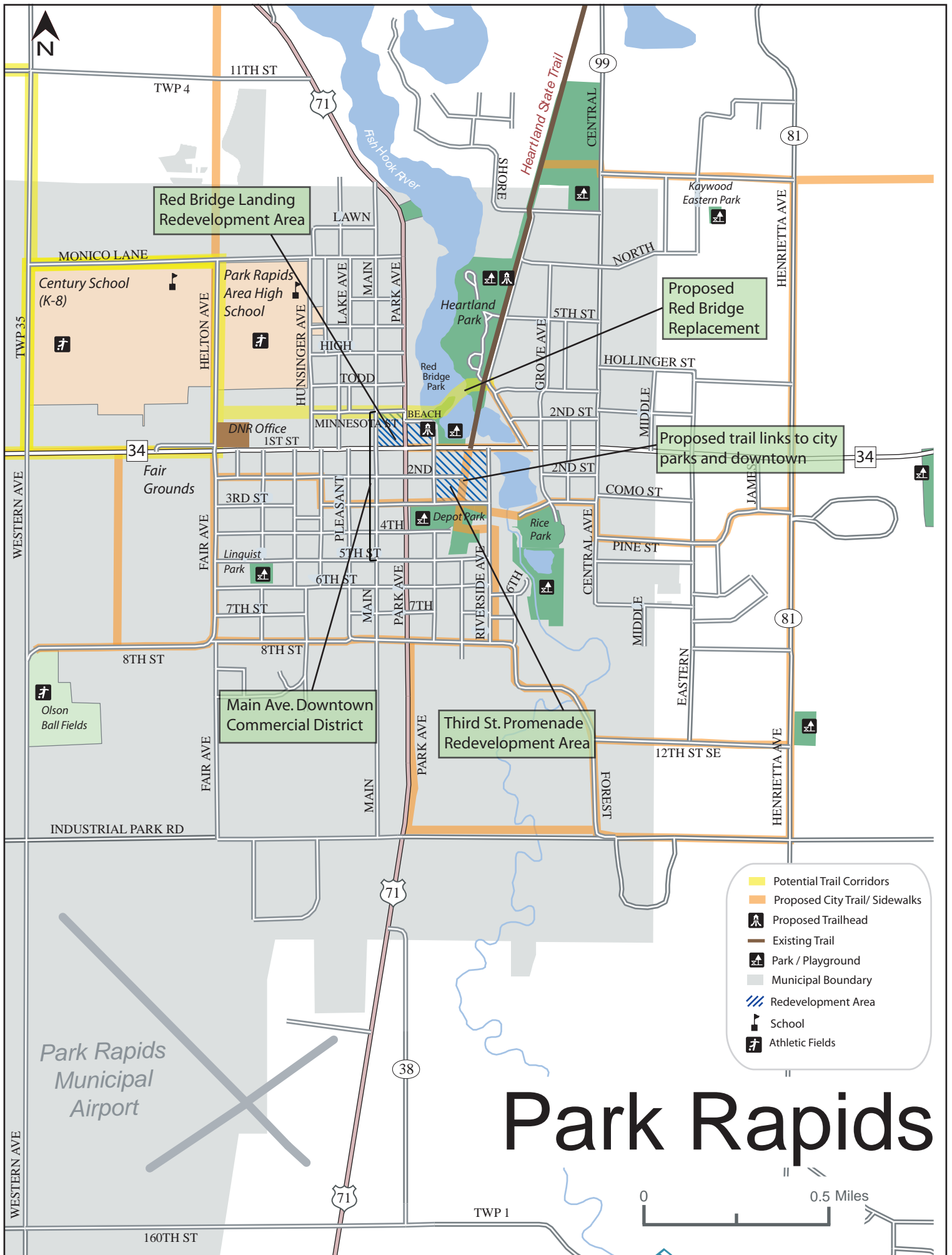


- 1 Major Commercial Development
- 2 Townhomes
- 3 Potential Office Development
- 4 Armory Adaptive Reuse
- 5 Trail Extension
- 6 Overlook
- 7 Depot Park Improvements

Third Street Promenade, image from  
Downtown Park Rapids Plan, RDG,  
2008

DNR staff recognizes and supports the City’s interest in creating trail linkages to the City’s downtown district and riverfront parks. However, given the difficulties in securing a safe crossing of 1<sup>st</sup> Avenue and the availability of an existing right-of-way on the north side of this highway, this plan recommends that the primary trail corridor remain on the north side, with local trails providing the desired linkages to the downtown and the parks south of the highway.

This route would take the Heartland Trail Extension across the Fishhook River on the Red Bridge (which would need to be replaced) and extend through Red Bridge Park. A new trailhead, as shown in the redevelopment plan for these blocks, could be located here. The trail would then continue along Beach Road, make a half-block jog north on Park Avenue, then continue west on Minnesota Avenue for 3 blocks, across Huntsinger Avenue. It would continue west on an existing snowmobile corridor that runs between Huntsinger Avenue and Helton Avenue for half a block, directly behind the Park Rapids DNR offices. The trail could then proceed west along Trunk Highway 34, or turn north along Helton Avenue, connecting to the middle school and high school, and exit the city in its



# Park Rapids



northwest corner along Township Road 4 (190<sup>th</sup> Street). (A local trail link to the middle school and high school would be desirable if the TH 34 alignment is selected.)

### *Trail Connections*

A trail connection between Park Rapids and Itasca State Park was identified during the planning process as a valuable addition to the region that would benefit trail users and the City of Park Rapids. The concept of a link to Itasca was first raised in the original 1979 Heartland State Trail Master Plan and the 1994 Paul Bunyan State Trail Master Plan, as part of a regional bikeways system. A trail alignment has not been defined; options to be explored include County Roads 4, 40 and 89, which are located east of Trunk Highway (TH) 71 for much of the route.

### **Smoky Hills State Forest**

Rolling to moderately steep slopes with a mix of hardwoods and jack pines characterize this nearly 24,000-acre forest. The Shell River and numerous small shallow lakes dot the area, providing shorebird viewing. The southern half of the forest is good for fall foliage viewing and for picking fruit and mushrooms. The forest is also known for exceptional hunting for deer and grouse during the fall season. It includes 30 miles of snowmobile trails, about 26 miles of hiking trails, and about 25 miles of off-highway vehicle trails. Like most state forests, Smoky Hills includes a mix of public and privately-owned land within its boundaries.

The Heartland Trail Extension would need to be sited to avoid or minimize interference with these trail uses and provide access to scenic views and other recreational opportunities, while avoiding steep slopes, wetlands, old growth forest and rare plant communities or wildlife habitat to the extent feasible.

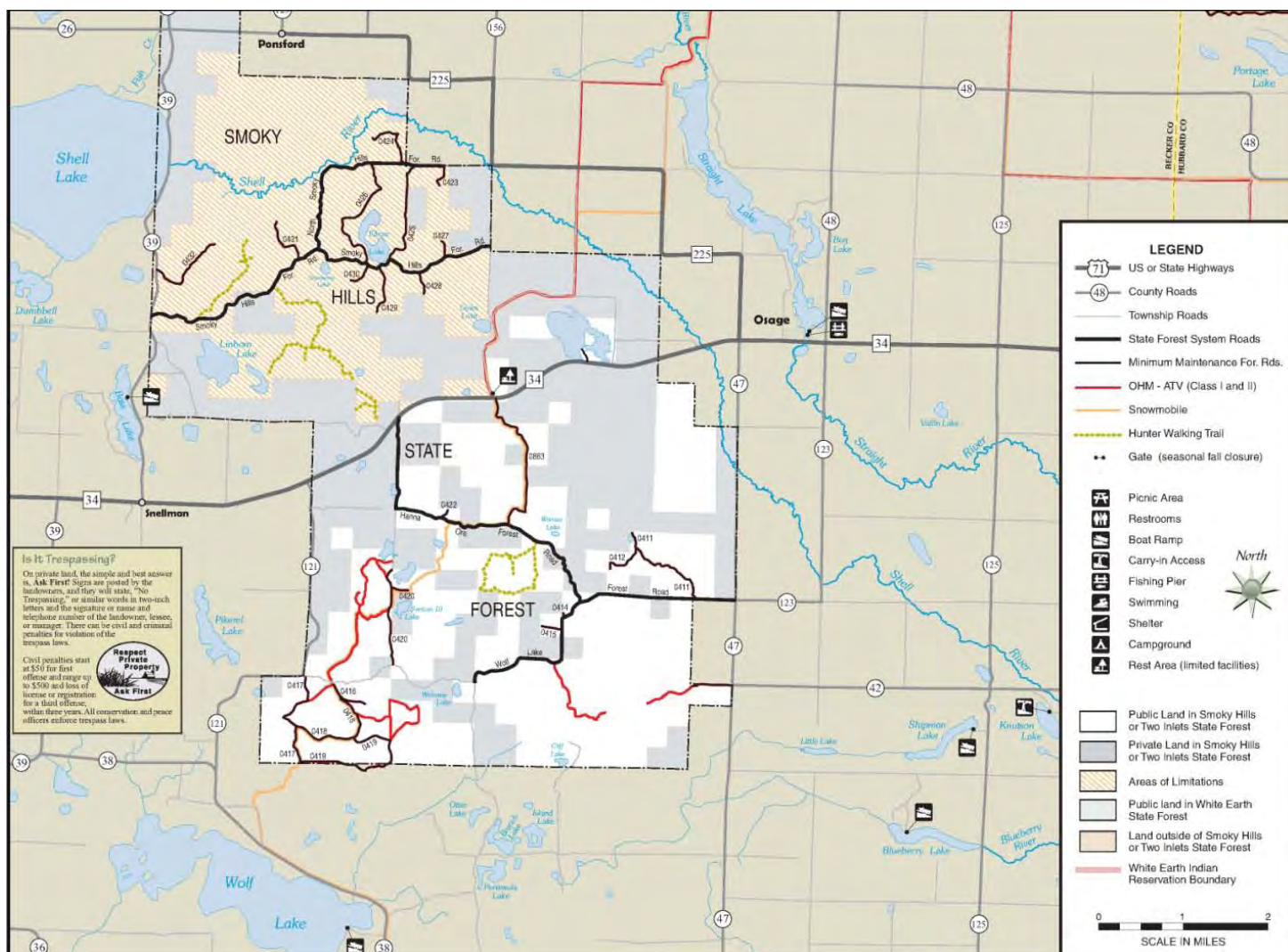
Several potential trail alignments through the state forest have been identified. The option that appears most feasible would cut across the southeast corner of the forest, connecting to 510<sup>th</sup> Avenue, a township road. Other options could follow portions of the Wolf Lake Forest Road, Wolf Lake Tower Road, County Road 121, or other local roads.

### **Tamarac National Wildlife Refuge**

The Tamarac National Wildlife Refuge covers 42,724 acres and lies in the glacial lake country of northwestern Minnesota in Becker County, about eighteen miles northeast of Detroit Lakes and nine miles north of TH 34 at the intersection of County Roads 26 and 29. It was established in 1938 as a refuge breeding ground for migratory birds and other wildlife.

Refuge topography consists of rolling forested hills interspersed with lakes, rivers, marshes, bogs and shrub swamps. The token of the refuge is the tamarac





tree. This unusual tree is a deciduous conifer, turning a brilliant gold before losing its needles each fall.

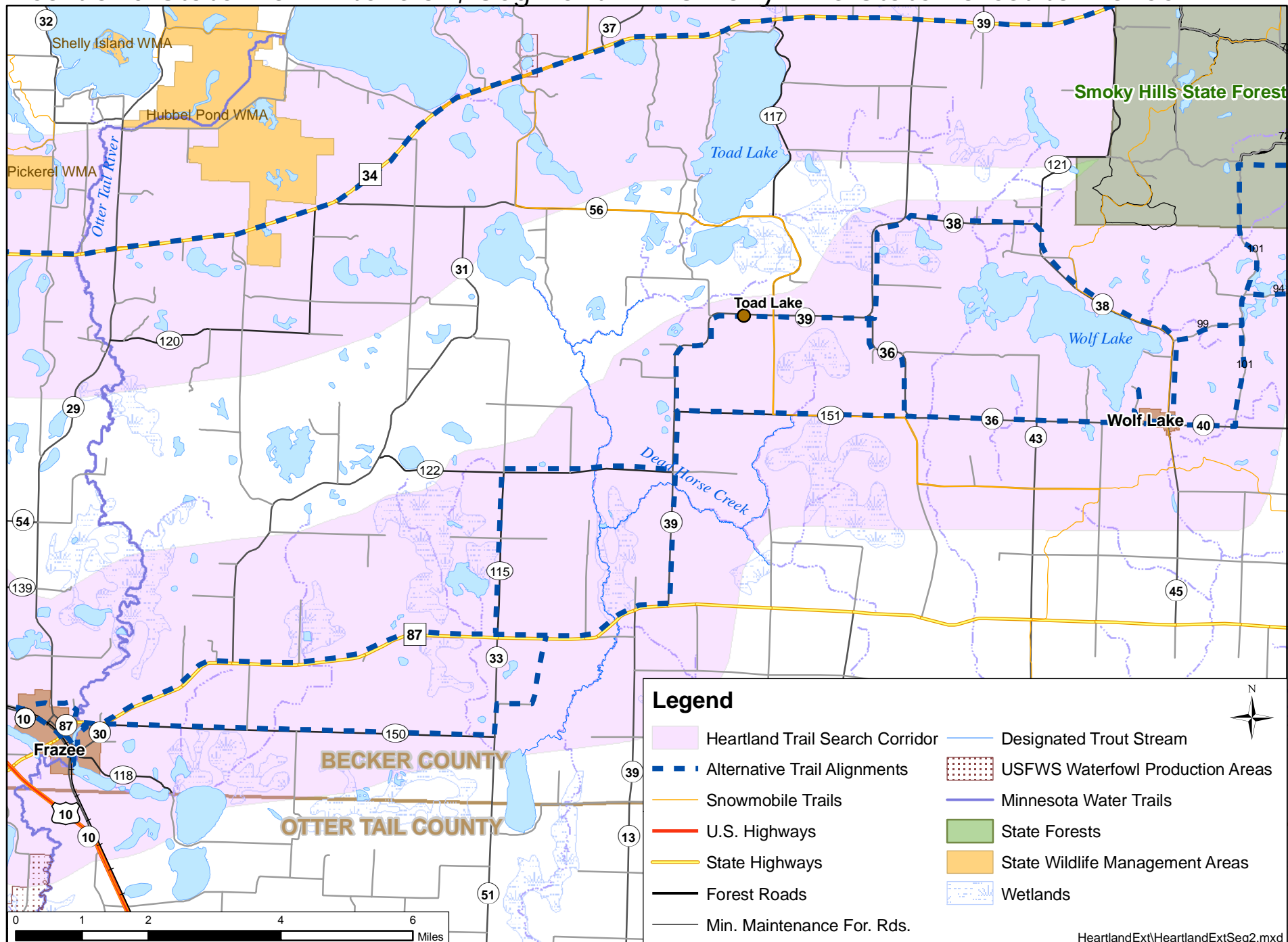
Vegetation and wildlife are diverse due to the refuge's location in the transition zone between northern hardwood and coniferous forests. Sixty percent of the refuge is forested. Aspen, jack pine, red pine, balsam fir, paper birch, red and white oak, sugar maple and basswood are dominant types.

The tallgrass prairie begins about 10 miles west of Tamarac. Numerous pockets of native big bluestem remain on the refuge, indicating that historically the tallgrass prairie extended into the refuge. About 1,500 acres of Tamarac are grassland, mostly remnants of early settler clearings or small farms. Wildflowers abound through the spring and summer seasons.

The Egg and Buffalo rivers begin on the refuge, and the Ottertail starts just upstream; all eventually run into the Red River of the North. There are twenty-one lakes on the refuge. Many of these lakes contain large wild rice beds which produce abundant waterfowl food in most years.



# Heartland State Trail Extension, Segment 2A: Smoky Hills State Forest to Frazee



The refuge's visitor center offers exhibits on the area's wildlife, history and habitat. Other facilities include hiking and cross-country ski trails, a driving tour, fishing and boating on several lakes, wildlife observation and limited hunting. Bicycling and horseback riding are permitted on county and township roads and service roads within the refuge.

## **Segment 2A: Smoky Hills State Forest to Frazee**

### **Overview of the Alignment**

The trail is proposed to follow or parallel county and township roads to the small city of Wolf Lake, and from there to the city of Frazee. Features of this segment include Wolf Lake's lakefront park, the rural hamlet of Toad Lake, Amish farms, the Otter Tail River Water Trail, and Dead Horse Creek, a designated trout stream. The communities of Wolf Lake and Frazee offer services and recreational opportunities for trail users.

While exact alignments have not been determined, several options exist for this section, using a combination of township roads, county roads and state trunk highways, as well as potential alignments on private land.

### **Criteria for Trail Alignment**

- Work with willing landowners to acquire right-of-way that showcases features of the landscape.
- Minimize trail user exposure to vehicular traffic.
- Provide trail user access to resources of the Smoky Hills State Forest.
- Minimize impact on wetlands.
- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities.

### **Smoky Hills State Forest to Wolf Lake**

The trail is proposed to cross the southeast corner of the state forest to connect to a vacated township road east of Branch and Island lakes, where Becker County has reserved an easement. Other options in this area include 510<sup>th</sup> Avenue, 180<sup>th</sup> Street, East Town Hall Road and County Highway 38, which leads to the community of Wolf Lake.

### **Wolf Lake to Frazee**

From Wolf Lake, several options for trail corridor alignments exist:

- Continuing west along County Highway 40 to County Highway 36, then veering north on 36 to connect with County Highway 39. A country store located along County 39 in the hamlet of Toad Lake offers trail users an opportunity for a food and beverage stop. The corridor then

turns south and west along County Highway 39, passing by Amish farms, which may provide trail users with the opportunity to purchase products as well as learn about the unique Amish way of life.

- Following County Highway 38 north from the city of Wolf Lake and following the Wolf Lake shoreline to the northwest, then continuing west and south along County 38 until it connects with County 39.
- County Highway 39 continues south across Dead Horse Creek to connect with State Trunk Highway 87, which continues west into the city of Frazee. Other potential alignments include County Roads 122 and 115 as an alternative to the north of TH 87, and County Road 150 to the south.

## **Segment 2B: Smoky Hills State Forest to Detroit Lakes**

### **Overview of the Alignment**

An alternative trail alignment for this segment would remain within or close to the Trunk Highway 34 corridor from the Smoky Hills State Forest to Detroit Lakes. This part of the TH 34 corridor is marked by more hilly terrain and extensive wetlands. If this alignment is selected, efforts would be made to acquire additional land near or adjacent to the right-of-way in order to avoid steep slopes, wetlands, and native plant communities, as well as respecting the scenic qualities of the byway. This alignment would pass through the unincorporated hamlet of Snellman, west of the Smoky Hills State Forest, which offers a highway wayside rest stop, a small convenience store, and a shop selling local crafts. It would also bring the trail close to the Tamarac National Wildlife Refuge and several other recreational attractions found along the byway:

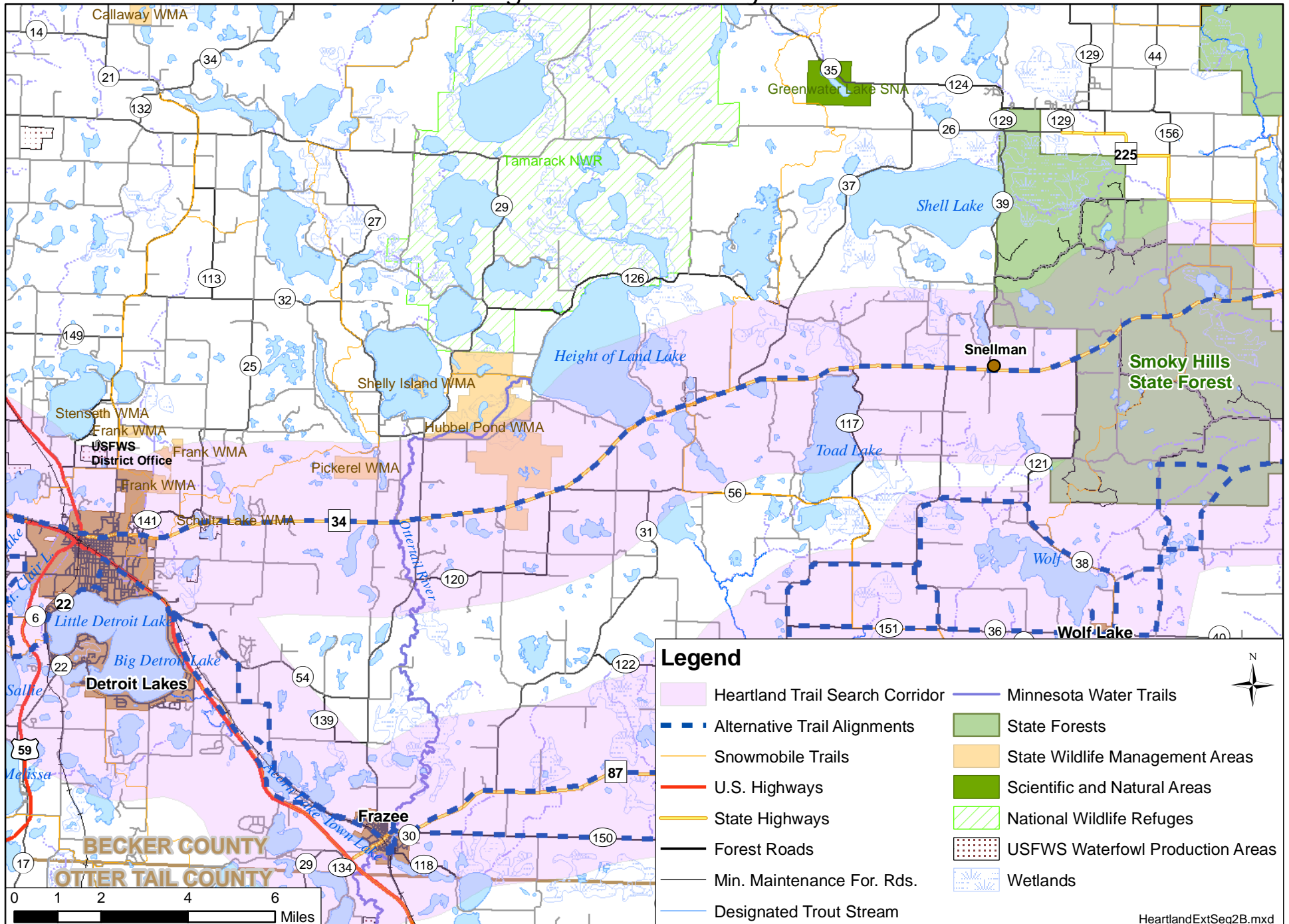
- Restaurant/bars with lake views at Toad Lake and Height of Land Lake
- Several working farms that offer tours, including dairy and hog farms;
- Toad Mountain Ranch, an equestrian center west of Toad Lake;
- Water tubing and paddling access to the Otter Tail River Water Trail.

This alignment would enter Detroit Lakes on the north side of U.S. 10 and the Burlington Northern tracks. If this alignment is selected, the most efficient route for the primary trail corridor would be to remain on the north side, with connections to the city's trail system along Roosevelt Avenue (see discussion of Detroit Lakes under Segment 3 Trail Communities and Connections).

### **Criteria for Trail Alignment**

- Work with willing landowners to acquire right-of-way that showcases features of the landscape, focusing on providing a buffer from TH 34 .

# Heartland State Trail Extension, Segment 2B: Smoky Hills SF to Detroit Lakes



- Minimize trail user exposure to vehicular traffic.
- Provide trail users with access to resources of the Smoky Hills State Forest.
- Minimize impact on wetlands and steep slopes.
- Avoid negative impacts on the aesthetic qualities of the Lake Country Scenic Byway.
- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities.

## **Segment 2A Trail Communities and Connections**

### **Wolf Lake**

#### *History*

Historically, Wolf Lake was a service center for surrounding farms. The community was significantly larger in the 1950s. Several implement dealers, a bakery, creamery, blacksmith shop, barbershop and butcher shop were located here.

#### *The Community Today*

The City of Wolf Lake is a small municipality within a larger township of the same name. The city's estimated population in 2008 was about 50 people in 20 households, while the township had a population of about 260 people in 80 households.

Although small in size, Wolf Lake offers services for trail users. Two restaurants and a convenience store will provide trail users an opportunity to obtain food and beverages. Wolf Lake Waterfront Park, located just outside the city at the end of Wolf Pack Road, is a highlight of this community. Located on the shore of 1,446-acre Wolf Lake, park facilities include a 14 site campground, restrooms, a shower building, a swimming beach, a picnic shelter, ball fields, horseshoe pits, a volleyball court, and a playground.

#### *Wolf Lake Trail Alignment*

It is anticipated that the trail alignment will approach Wolf Lake either along the County Highway 40 corridor on the west or the County Highway 38 corridor on the north. A short spur trail will connect with Wolf Lake Waterfront Park, which will serve as a trailhead and rest area. A desire for development of a small trailhead in town off County 38 was also identified during the planning process.



**Wolf Lake Waterfront Park**



### Segment 3: Frazee to Detroit Lakes

#### Overview of Trail Alignment

This segment is essentially a continuation of Segment 2A, which extends to Frazee. It has received strong local support because it would connect two population centers about 10 miles apart and is likely to attract both local trail users and tourists for day trips. The proposed alignment parallel to the BNSF railroad and U.S. 10 provides opportunities to enjoy the region's landscape and interpret its transportation history.

#### Criteria for Trail Alignment

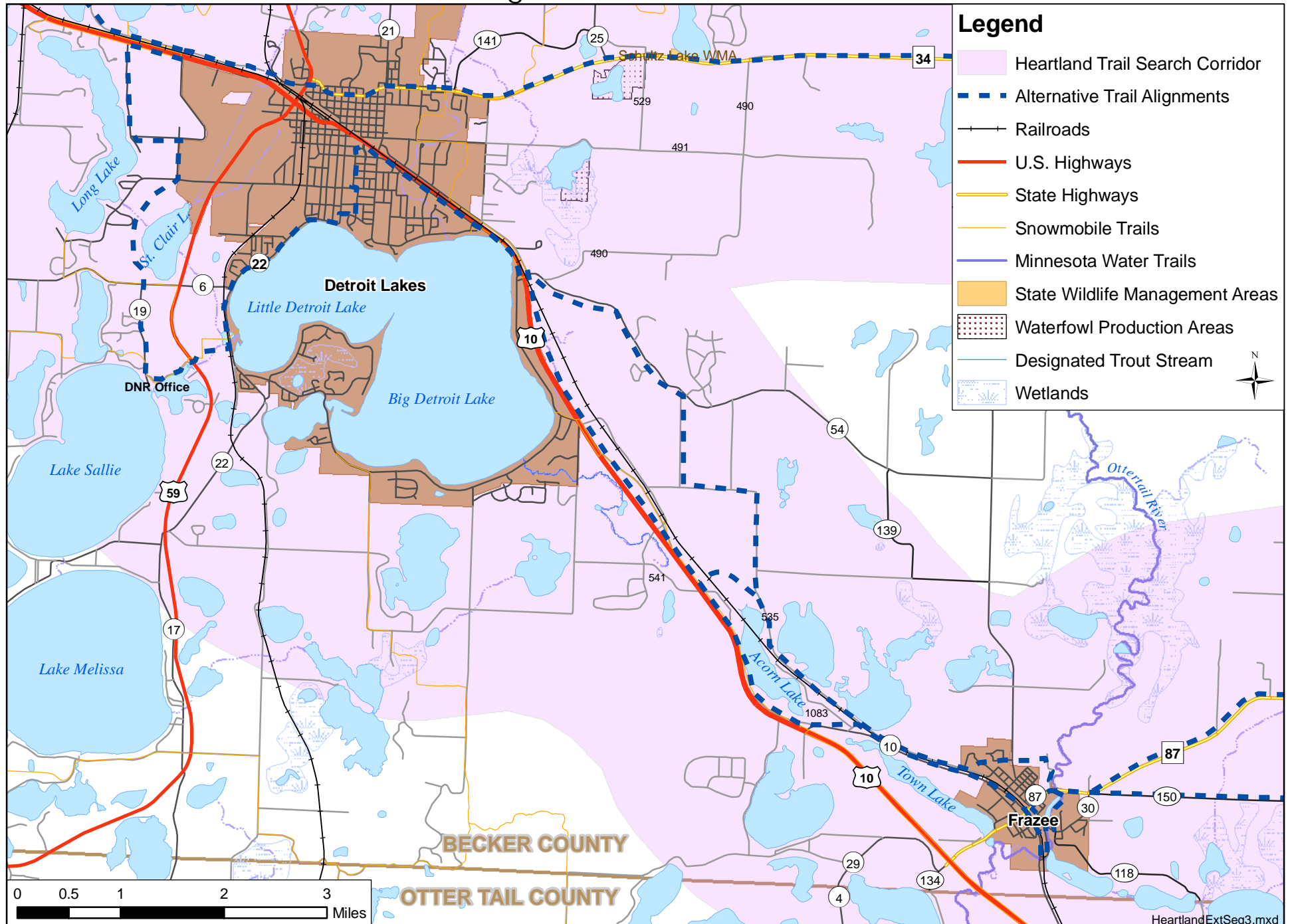
- Work with willing landowners to acquire right-of-way that showcases features of the landscape.
- Work with Mn/DOT and the BNSF railroad to minimize trail user exposure to vehicular traffic and ensure trail safety.
- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities

#### Trail Alignment Options

From Frazee there are several options for the trail alignment north to Detroit Lakes paralleling the U.S. 10 corridor. County Highway 10 parallels the railroad north from Frazee, on the east side of Town Lake. At the north end of Town



# Heartland State Trail Extension, Segment 3: Frazee to Detroit Lakes



Lake, County 10 turns west to cross U.S. 10 and Acorn Lake Road continues north, parallel to U.S. 10, to dead end on the west side of Acorn Lake. From this point, a former township road right-of-way parallels the shoreline of Acorn Lake and would provide an outstanding scenic vista of the lake.

Continuing north of Acorn Lake, a county right-of-way, Old Highway 10, is located between the railroad tracks and U.S. 10. This right-of-way offers an attractive option through a wooded area that would provide trail users with protection from highway noise and traffic.

Another alternative is for the trail to remain on the north side of the railroad following Frazee Road, then turn northwest on a former railbed, cross the BNSF tracks via an overpass, then join Old Highway 10.

A third alternative alignment would remain on township roads and County Highway 54, although this route would present more challenges in terms of steep topography.

Development of an underpass is recommended in order for the trail to safely cross U.S. 10 into Detroit Lakes. The underpass would likely be located near the intersection of U.S. 10 and County Highway 54. From this point, an existing lakefront trail, constructed as part of recent U.S. 10 reconstruction, extends for about a third of a mile to the intersection with North Shore Drive.

A variety of potential routes through Detroit Lakes could provide access to the city's large lakefront park, its lively downtown, and numerous local bike routes (see Detroit Lakes section below).

## **Segment 3 Trail Communities and Connections**

### **Frazee**

#### *History*

Settled in 1868, Frazee originally flourished as a lumber town, and was one of the first areas settled in Becker County. The community's namesake, Randolph L. Frazee, arrived in 1872 and purchased the Campbell Chilton sawmill. He also established a flour mill, general store and blacksmith shop.

Frazee has had three names in its history – Detroit Village, Third Crossing, and finally Frazee. Detroit was its first name, given to the community when the original plat was made in 1857. It was also known as Third Crossing due to the fact that the Red River Oxcart Trail crossed the Otter Tail River for the third time in the city. The Hobart Depot and Weymouth Hotel, built in 1874 spurred the growth and development of Frazee. In the late 1880s the population peaked at 2,000. Logging, flour milling and the railroad created a strong economic environment for the community. Frazee was incorporated in 1891.

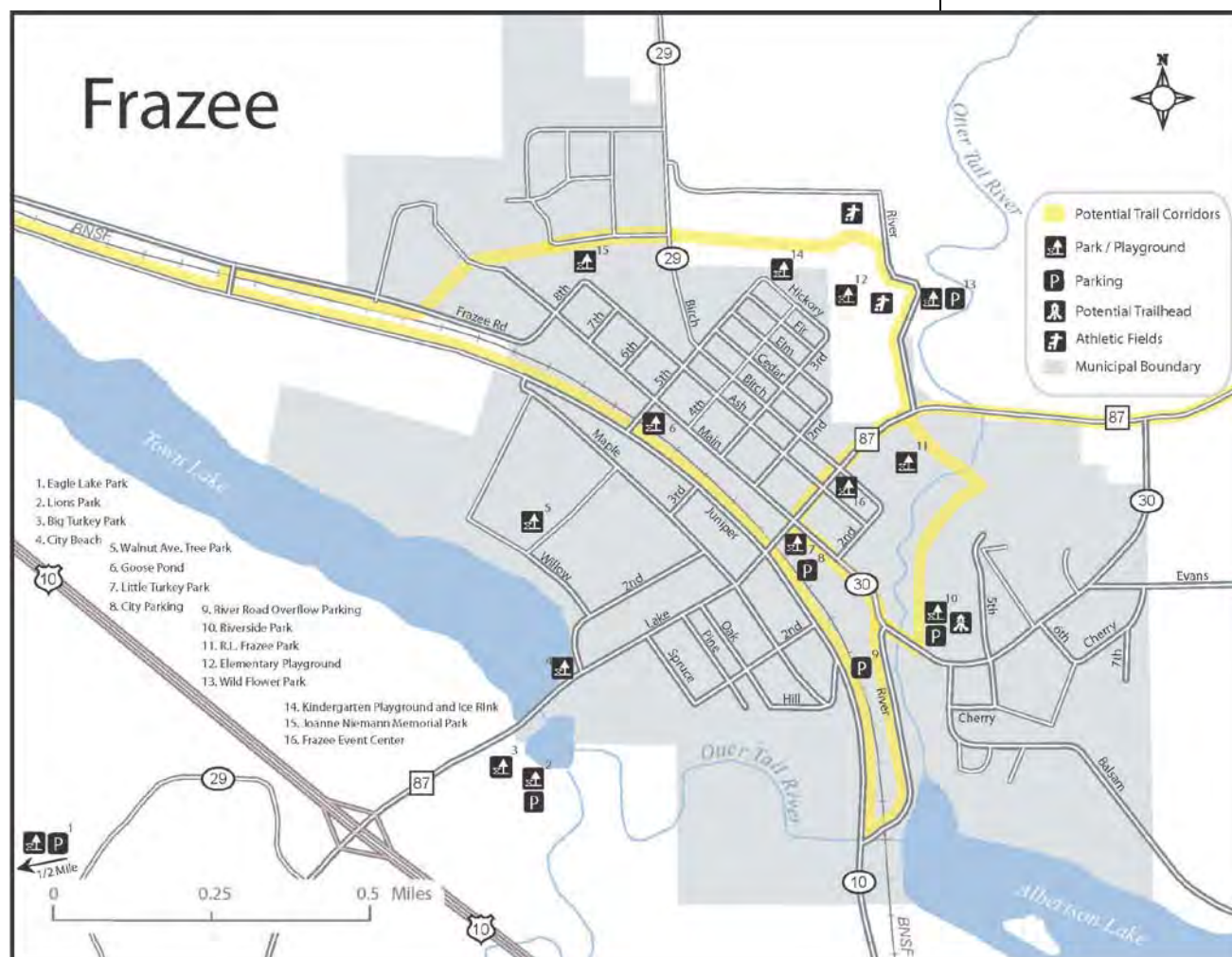
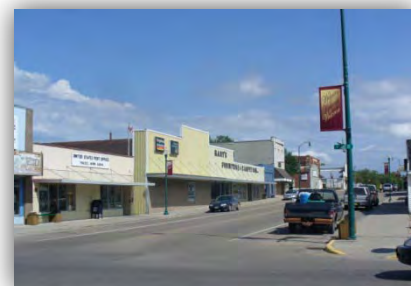


## The Community Today

Frazee's population was 1,377 at the time of the 2000 U.S. Census and was estimated at 1,352 – almost unchanged – in 2008. The community is home to a variety of businesses and services. Tourism and agriculture are important industries; the area is a center for production of turkeys. Education, health, and social services are the largest employers, followed by manufacturing, retail and transportation/warehousing/utilities. Trail users will appreciate the hospitable downtown with its interesting historic buildings, restaurants and shopping.



Otter Tail River Water Trail



Frazee is a hub of trail activity. The Otter Tail River Water Trail (see map above) passes through town and Frazee promotes itself as the “Gateway to the Otter Tail River.” A segment of the North Country National Scenic Trail, a hiking and backpacking trail, is planned to run through the city (see discussion below). The Winter Wonderland snowmobile trails (Grant-in-Aid Route 275) are connected to town on the north side.

A diversity of scenic and recreational amenities is found in the community’s seven parks. The quarter-acre Frazee Lions Park (or Big Turkey Park) includes the “World’s Largest Turkey,” standing over 20 feet tall and 17 feet wide. The one-acre Town Lake Park (or Frazee City Beach) includes a swimming beach, boat launch, fishing pier, a picnic shelter and restrooms. Riverside Park is located along the Otter Tail River and includes boat access, a swimming beach, a playground, and a sledding hill. Five-acre Eagle Lake Park includes a swimming beach, boat launch, playground equipment, picnic tables, horseshoe pits and two shelters.

The community hosts a number of special events including Turkey Days in July, Oktoberfest in October, Festival of Trees in November, and Sled Dog Races in January.

#### *Frazee Trail Alignment and Trailhead Location*

The community has identified Riverside Park, adjacent to the Otter Tail River, as a good location for a trailhead. It is anticipated that the Heartland Extension corridor will approach the community from the east along the TH 87 corridor. One potential route could then travel south along the Otter Tail River or nearby streets to Riverside Park, then follow County Highway 10 to the northwest. Another potential route could turn north through the ballfield complex, then west to Frazee Road, then cross the railroad to County 10.

The Heartland Extension, Otter Tail River Water Trail, North Country National Scenic Trail, Winter Wonderland snowmobile trails, and local community trails will all intersect in Frazee. The development of a shared trailhead could provide information about all trail opportunities as well as the other services needed by trail users.

#### **North Country National Scenic Trail**

The North Country National Scenic Trail (NST) was designated as a national scenic trail in 1980. It is administered by the National Park Service (NPS), and is intended to be developed as a premier hiking and backpacking trail which is nationally significant in its scenic and recreational qualities. The North Country NST has been proposed along a generally defined corridor that extends through seven states, from New York to North Dakota.



"Big Turkey Park" in Frazee

The North Country NST routing proposed through Minnesota extends from the Duluth-Superior area up the north shore of Lake Superior, west to Ely and Grand Rapids, then west through the Chippewa National Forest, Paul Bunyan State Forest and Itasca State Park. From Itasca, the trail would extend in a southwest direction toward Frazee, and Maplewood State Park, crossing into North Dakota at Breckenridge.

A 45-mile trail segment from Greenwater Lake Scientific and Natural Area to the Frazee city limits is currently undergoing environmental review prior to development. This segment would consist of 25.6 miles of new trail and 19.3 miles of existing trail and rural road-walk. It would cross Trunk Highway 34 at or near the Hubbel Pond WMA, and then continue south paralleling the Otter Tail River to the north city limits of Frazee.

As a “partnership park,” the North Country NST is proposed to meet local needs and blend with the character of the landscape. Federal, state, local, and private landowners or managers participate in hosting, developing, and/or maintaining segments of the trail. The North Country Trail Association, a private volunteer organization, would carry out trail development and maintenance activities.

## **Detroit Lakes**

### *History*

Detroit Township and Detroit Lakes were named with the French word referring to the strait formed by the long point extending from the south shore, nearly dividing the lake into two basins.<sup>2</sup> In 1926 the city’s name was changed to Detroit Lakes to eliminate confusion between this community and Detroit, Michigan.

Detroit Lakes has been located on a transportation corridor of statewide significance from its beginning. Between the 1830s and 1860s, the northernmost of three branches of the Red River Ox Cart Trails passed through the area. From the 1830s to the 1860s the ox carts transported furs from Winnipeg to St. Paul and returned to Winnipeg with supplies. The coming of the railroad replaced the ox cart trails and accelerated the growth and development of the Detroit Lakes area. The Northern Pacific reached Detroit Lakes in 1871 and the Soo Line in 1930.

### *The Community Today*

Detroit Lakes had a population of 7,483 in 2000, according to the U.S. Census. The population has grown since then to an estimated population of 8,599 in

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<sup>2</sup> “A Sense Of Place: The Legacy of Names,” by Greg Breining, *Minnesota Conservation Volunteer*, Jan.-Feb. 2001.

2008. The city is a gateway to lake country, with 412 lakes located within 25 miles. Detroit Lakes is the county seat of Becker County and is a diversified business and service center. It is also an education center, home to one of the campuses of the Minnesota State Community and Technical College.

The City's goals include promoting Detroit Lakes as a community to not only grow up in but to grow old in, creating safe family pedestrian and non-motorized pathways, developing a friendly healthy community lifestyle, and promoting economic strength and a business-friendly environment. The recently-completed *Business Corridor Redevelopment Plan* focuses on redevelopment and revitalization of the Highway 10 gateway area, the traditional downtown, and several corridors leading to and along the lakefront.

A variety of recreational opportunities attracts people to Detroit Lakes and serves residents as well. Big Detroit and Little Detroit Lakes are significant scenic and recreation amenities. The north shore of Little Detroit Lake offers a mile-long public swimming beach, two boat accesses, a fishing pier and a mile-long shoreline restoration project with a visitor overlook that includes historical interpretive signage. The 25-acre City Park, on the north end of Little Detroit Lake, includes a band shell, picnic area, Frisbee golf course, physical fitness course, playground equipment, a recreation center, tennis courts, and restroom and bathhouse facilities.



Municipal Beach and Bath House,  
Detroit Lakes. Minnesota  
Historical Society, ca. 1950

Other city parks include the Grand Army of the Republic (GAR) Park with picnic shelters and a flower garden, the 39-acre Long Lake Park with picnicking and boat launch, and the 7-acre Peoples Park with basketball and volleyball courts, picnicking, and playgrounds. Sucker Creek Preserve, located on the southeastern end of Big Detroit Lake is a 60-acre natural area with trails and interpretive signage. Community plans call for city and county parks and school recreation areas to be connected with a city trail system.

Special events in Detroit Lakes include music festivals (WE Fest and the 10,000 Lakes Festival) Festival of Birds, Street Faire and Arts and Crafts in the Park, Northwest Water Carnival, and Dick Beardsley Half Marathon and 5K race.

The Becker County Museum is located in downtown Detroit Lakes and houses artifacts that tell the story of the county's past. The Historic Holmes Theatre, built in 1932, hosts live performances.

Dining and shopping opportunities are plentiful in vibrant downtown Detroit Lakes. Lodging is available at a variety of motels and a public campground is located across the street from the city beach.

*Trail Alignment: Option 2A*

The goal of this plan is to route the Heartland State Trail Extension through Detroit Lakes and connect trail users to community services and amenities. Several concepts for the location of the state trail corridor through Detroit Lakes were identified during the planning process. The following alignment has been identified by city and county staff, based on the assumption that the "southern route" from Frazee is selected as the preferred alignment. It is important to note that portions of this alignment may not be suitable for snowmobiles, given its likely use by pedestrians year-round. A separate snowmobile route that follows some of the existing snowmobile trails north of U.S. 10 may be needed.

The trail will approach Detroit Lakes from the southeast along the U.S. 10 corridor. It is recommended that an underpass be constructed to bring the trail across U.S. 10. An off-road trail has been constructed along a small portion of the lakeshore in conjunction with the reconstruction of U.S. 10, terminating at North Shore Drive.

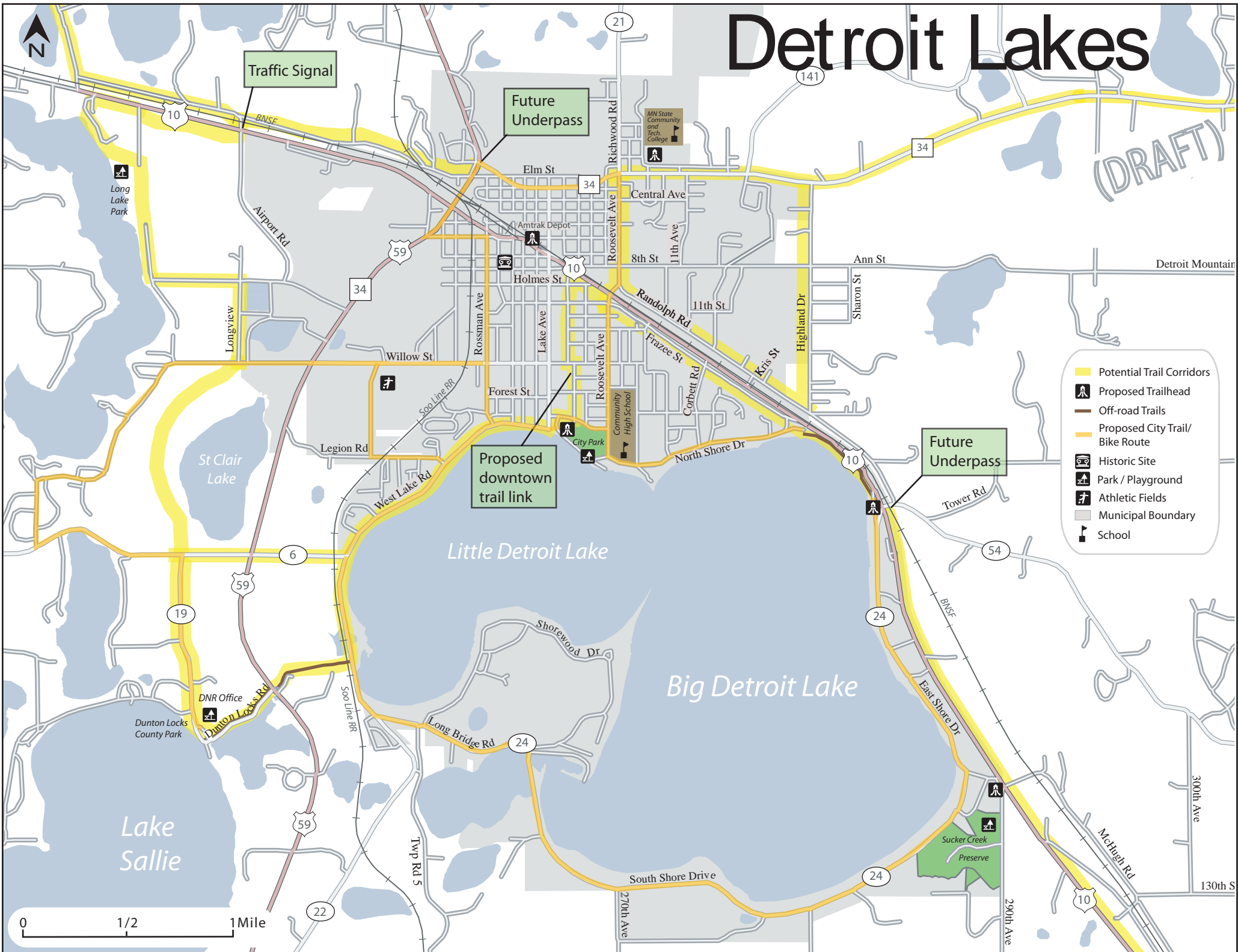
From this point, the trail could continue along Frazee Street, the frontage road on the south side of U.S. 10. The city is currently working on redevelopment of the downtown "Gateway" area immediately south of U.S. 10 at McKinley Avenue, where the U.S. 10 realignment opens up additional land and views of the city. The trail could then turn west on McKinley Street to Lincoln Avenue. This segment is planned for construction as part of the expansion of the St. Mary's Innovis Health Center and the MeritCare campus. The trail is planned to continue south along Lincoln Avenue to and through City Park. This alignment would give trail users direct access to downtown businesses as well as the lakefront.

From City Park, the trail could follow West Lake Drive along the city beach. West Lake Drive is currently a two-lane street with a wide striped lane for parking. While the parking lane can be shared by experienced bicyclists, it is quite busy during summer peak season. Detroit Lakes' *Business Corridor Redevelopment Plan* recommends a redesign of the street that would provide a 12-foot "boardwalk" – a shared bike/walking path – on the south side of the street along the lakefront. The new street section would allow for two-way



# Detroit Lakes

(DRAFT)



- Potential Trail Corridors
- Proposed Trailhead
- Off-road Trails
- Proposed City Trail/Bike Route
- Historic Site
- Park / Playground
- Athletic Fields
- Municipal Boundary
- School

0 1/2 1 Mile



West Lake Drive redesign concept from *Business Corridor Redevelopment Plan*. Image courtesy of City of Detroit Lakes/RDG Planning & Design.

vehicular traffic and a parking lane on the north side. The proposed redesign would allow the trail to be constructed through this area.

The trail could then continue along West Lake Drive to the Dunton Locks County Trail, about a mile south of City Park, which follows the channel between Little Detroit and Muskrat Lakes, crosses under the Soo Line railroad and TH 59, and leads to Dunton Locks County Park. This park is located 2.5 miles south of Detroit Lakes on Muskrat Lake, a small lake adjacent to Lake Sallie. A mechanical boat tram pulls watercraft between these lakes. The paved Fish Hatchery Recreation Trail connects the park to West Lake Road on Little Detroit Lake. The park also includes trails for bicycling, cross-country skiing, and hiking, two picnic shelters and two fishing piers. Interpretive signs tell the cultural and natural history of the area.

From the park, the trail could follow County Highway 19 a short distance north to County Highway 6. From this point, the city proposes an off-road trail segment along the west side of St. Clair Lake, leading to Long Lake Road.

Long Lake Road could potentially provide the needed trail connection to a signalized crossing of U.S. 10. This city street winds through a developing area on the east side of Long Lake, providing access to Long Lake Park, which is also under development. It will be constructed with a connection to U.S. 10. However, the most feasible option for crossing U.S. 10 at present is the traffic signal located at Airport Road, a short distance east. Development of an overpass or underpass should also be considered.



Lake Sallie Lock, Near Detroit Lakes (now Dunton Locks). Photo: W.O. Olson, 1909. Minnesota Historical Society.



Trail to Dunton Locks County Park

*Trail Alignment: 2b (North Side)*

If the trail alignment option shown as map segment 2B is selected, the trail would approach the city from the east. Potential alignments could follow a city bike route along TH 34, crossing U.S. Highway 59 via an underpass, and continuing along Elm Street and Anderson Road north of U.S. 10. An off-road connection would be needed in order to continue west along Wine Lake Road (see Segment 4 discussion below). The city trail system would provide connections south to downtown, City Park and other destinations.

*Trailheads*

There are four sites in Detroit Lakes that could serve as trailheads:

1. City Park – This site provides many amenities that trail users need, including parking, picnic sites, restrooms, and water, as well as a connection to the lake and the city beach.
2. The Depot – This historic depot will have parking available and will serve as a transit hub, a natural place for incorporating bicycle travel.
3. The Minnesota State Community and Technical College campus, located north of TH 34 at Broadway Avenue – this site could be feasible if the trail alignment follows the TH 34 corridor (Map 2B).
4. City land at the intersections of County Highways 53 and 54.

*Trail Connections*

Detroit Lakes has a community trail plan and is working to develop an interconnected system of trails within the community. The Heartland State Trail Extension should connect to the community trail system so that trail users can access the wide array of amenities and services the community offers, including lodging facilities, restaurants, parks, downtown businesses, and music festival sites. Connections could include the “loop” of roads that encircle Big and Little Detroit Lakes.

**Segment 4: Detroit Lakes to Hawley****Overview of the Alignment**

This trail segment will be located to the north of U.S. 10, primarily along township and county roads, in order to provide access to towns and their services, avoid heavy traffic, and expose trail users to scenic views and natural features such as Hamden Slough. Land use outside the towns is largely agricultural, interspersed with small lakes, multiple wetlands and “prairie potholes,” with relatively little shoreland development. The small cities of Audubon, Lake Park and Hawley provide opportunities for rest stops, trail heads and recreation.



**Criteria for Trail Alignment**

- Minimize number of crossings of U.S. 10; provide options for signalized or grade-separated crossings where required.
- Work with willing landowners to acquire right-of-way that showcases features of the landscape.
- Connect to and through trail communities wherever possible.
- Provide connections to natural areas and features of the route.
- Minimize trail user exposure to vehicular traffic.
- Minimize impact on wetlands.
- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities.

**Potential Trail Alignments**

A specific alignment for the state trail has not yet been finalized. The following narrative describes the most feasible alignment, but other alternatives may also be considered.

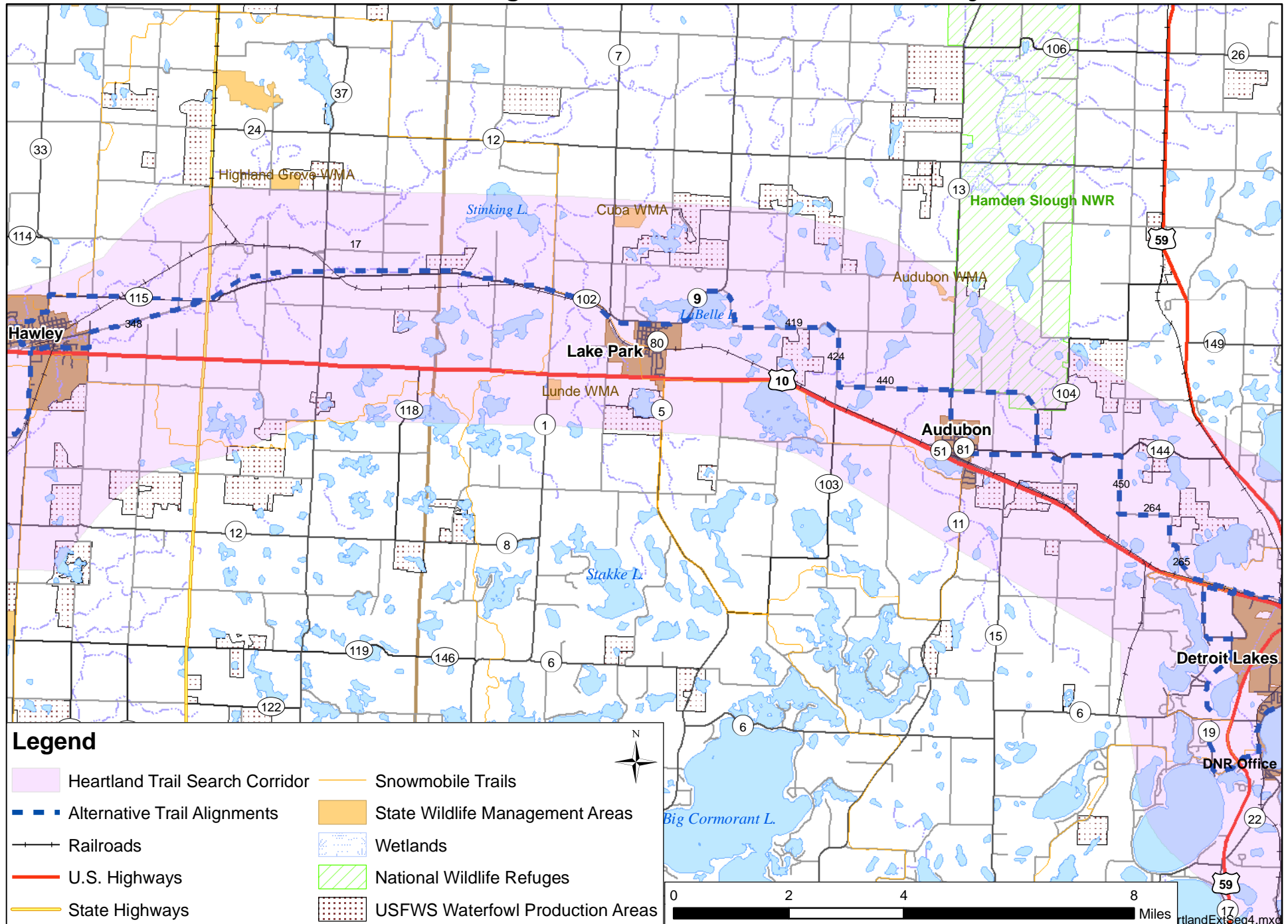
If coming from the south side of Detroit Lakes, the trail corridor would cross U.S. 10 and the Burlington Northern railroad at or near the traffic signal at Airport Road. From this point, the alignment could follow a frontage road, Anderson Road, which continues west to intersect Wine Lake Road. If coming from the north side of Detroit Lakes, the trail corridor would follow Elm Street, which becomes Anderson Road.

Wine Lake Road continues north and west to 230<sup>th</sup> Avenue, which continues north to County Road 144. This road leads directly west into Audubon. A more interesting option is to follow County Road 104 north to the Hamden Slough National Wildlife Refuge. An overlook at the intersection of CR 104 and 210<sup>th</sup> Street provides outstanding views across the lakes and wetlands of the wildlife refuge. From this point, 210<sup>th</sup> Street continues west to County Highway 13, which leads south into Audubon, a distance of less than a mile.

From Audubon the trail alignment will follow or parallel County Highway 13 north again to 210<sup>th</sup> Street, which continues west to 160<sup>th</sup> Avenue. Fairly steep grades on 160<sup>th</sup> Avenue also provide expansive views to the west. The alignment will then jog to the north and again west, following 220<sup>th</sup> Street to 161<sup>st</sup> Avenue, which then curves north around LaBelle Lake, joining County Highway 9. A narrow causeway between LaBelle and Duck lakes provides the only road access into Lake Park from the east, other than U.S. 10.

In Lake Park, County Highway 9 becomes North Street. West of Lake Park, County Highway 7 intersects County Road 102, which closely parallels the BN railroad. This road continues as C.R. 115 and crosses beneath the railroad grade with a one-lane underpass, then continues as C.R. 15, to Winnipeg Junction, a

# Heartland State Trail Extension, Segment 4: Detroit Lakes to Hawley



small residential settlement near County Highway 32. A township road right-of-way (28<sup>th</sup> Avenue North), apparently no longer in use, borders the rail line a short distance to the north, and might provide an alternative route. Both these roads intersect County 32 (260<sup>th</sup> Street).

From the intersection of C.R. 15 and County 32, a minimum maintenance road, Old Highway 2, follows a diagonal path into Hawley. The Buffalo River meanders between this road and U.S. 10. With relatively few driveways intersecting the road and substantial areas of floodplain to the south, this road may offer some opportunities for trail use, extending to the eastern edge of the city. (See discussion below under Trail Communities and Connections: Hawley.) An alternative option is to continue along C.R. 15 to County Highway 33 (5<sup>th</sup> Street), which leads into Hawley on the west side of the railroad.

## **Segment 4 Trail Communities and Connections**

### **Audubon**

#### *History*

The community of Audubon was named after the famous ornithologist, naturalist and painter John James Audubon. Audubon's niece, travelling through the area in 1871, was impressed by the area's beauty and wildlife and suggested that any future settlement be named after her uncle. The city developed around the Northern Pacific Railroad. In 1872 a hotel and land office were established; streets were platted and given the names of local birds. By 1896 the town boasted a substantial business district, complete with clothing and hardware stores, creamery, wagon maker, restaurants, bars and other businesses.

#### *The Community Today*

Audubon's population was estimated at 491 in 2008. The city is home to a variety of businesses, services and government offices. Lake Park Audubon Elementary School is located here. Audubon Park on 8<sup>th</sup> Street provides playground equipment, ballfields and restrooms.

#### *Trail Alignment*

The Heartland Trail Extension could reach Audubon via County Road 144 (Falcon Street) or County Highway 13, coming south from the Hamden Slough National Wildlife Refuge. County 13 is also the logical route north to connect the trail to Lake Park.



## Lake Park

### History

Like the other communities in this area, Lake Park grew up around the Northern Pacific Railroad (now Burlington Northern Santa Fe). The Lake Superior and Puget Sound Land Company purchased land for a station site from one of the original settlers, Jonas Erickson, and the village grew around the station, incorporating in 1881.

### The Community Today

Lake Park's population was estimated at 825 in 2008. The city is the site of the Lake Park Audubon High School. The City Park includes a large outdoor swimming pool, as well as playground, picnic area, softball fields and restrooms. A café, grocery store and drug store are also located in the city. The Lake Park Area Historical Society occupies a historic building, the Amdal House.

### Trail Alignment

The trail could approach the city from the east along North Street/C.R. 9, which becomes County Highway 7. Audubon/1<sup>st</sup> Street leads to the City Park; 2<sup>nd</sup> Street (also County 7) is the main downtown street. County 7, as the extension

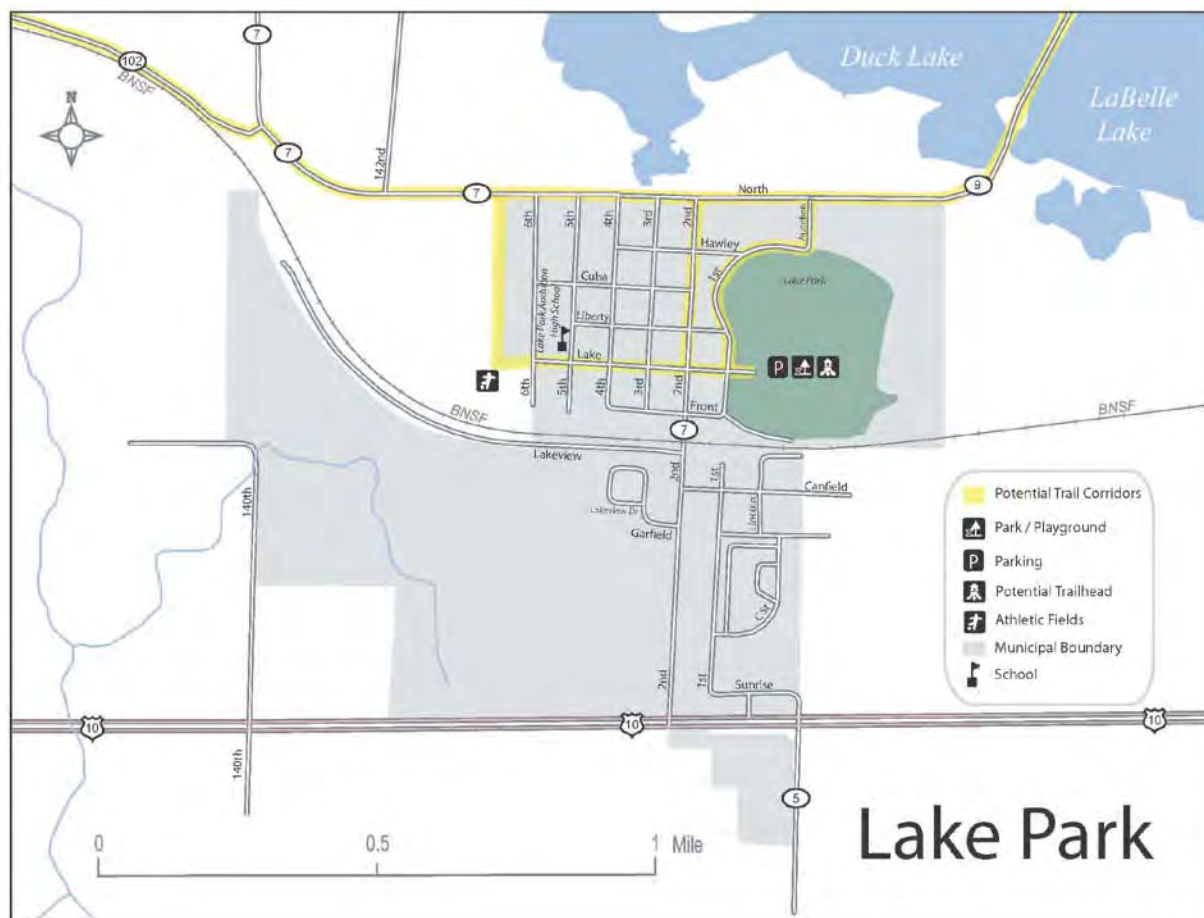


Lake Park community pool



Lake Park central park

of North Street at the city's northern boundary, also continues west from Lake Park toward Hawley.



## Hawley

Hawley is located on U.S. 10, twenty miles east of Fargo-Moorhead and 23 miles west of Detroit Lakes. The city's population was 1,882 in 2000 and was estimated at 1,921 in 2008. Hawley has an abundance of natural resource amenities including the Buffalo River, parks and open space, and proximity to lakes. Agricultural land use predominates in surrounding areas.

Several community parks provide recreational opportunities. Riverbend Park, the largest park, is located adjacent to the Buffalo River south of Highway 10 and on the east side of the railroad tracks; it includes a playground, basketball court, a large shelter, and two bridges across the Buffalo River. Adjacent to the park are the Municipal Golf Course, an 18-hole, par 71 facility, a baseball diamond and softball complex, and the Hawley Rodeo Grounds. A wayside rest is located adjacent to the park. Several smaller parks and a municipal swimming



pool are located in neighborhoods north of U.S. 10 and the downtown. A new park is currently under development on Hobart Street just west of the Buffalo River.

The city recently completed construction of a Safe Routes to School path between Westgate Drive and the Hawley School. A recreational path for walking, rollerblading, and biking circles Westgate Park.

### *Trail Alignments*

Trail alignments in Hawley are challenging because of the elevated railroad line, which crosses over U.S. 10, bisecting the city just east of the downtown, with no crossings other than U.S. 10 itself. Moreover, the lack of a signalized crossing on U.S. 10 creates a significant barrier between the city and its largest park, Riverbend Park.

The City's Comprehensive Plan, adopted in 2009, calls for placement of a traffic signal at the intersection of US Highway 10 and County Highway 31/33. A traffic study conducted by Mn/DOT and Clay County in 2008 recommended a number of modifications to assist in meeting warrants for the placement of a traffic signal at this location. Most of these involve closing or restricting existing unsignalized access points to US 10 through the city. Placement of a signal is anticipated within the next several years.

A signal at County Highway 31/33 will improve vehicular and pedestrian/bicycle safety, but does not address the problem of access from the city to Riverbend Park and the many adjacent recreational facilities. The Comprehensive Plan states that:

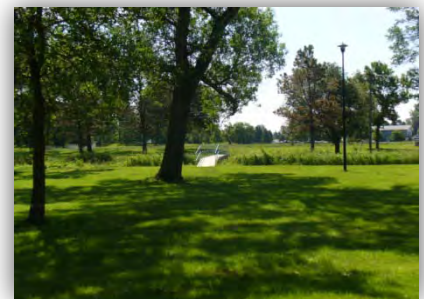
"US Highway 10 is a barrier for pedestrian and bicycle traffic. As the City of Hawley contemplates development plans to the south of US Highway 10 it must first develop a strategy to allow for the safe passage of pedestrians and bicyclists across US Highway 10. Pedestrian movements to and from the recreational areas east of town have been identified as an area of concern."

The plan recommends a grade separated facility (bridge or tunnel) across U.S. 10 east of the railroad, and a bridge or tunnel crossing of the railroad on the south side of U.S. 10. These facilities would provide an ideal crossing for the Heartland Trail, and would enable Riverbend Park to be fully utilized as a trailhead and recreational area. However, a crossing of this type is costly and is likely to be a long-term improvement.

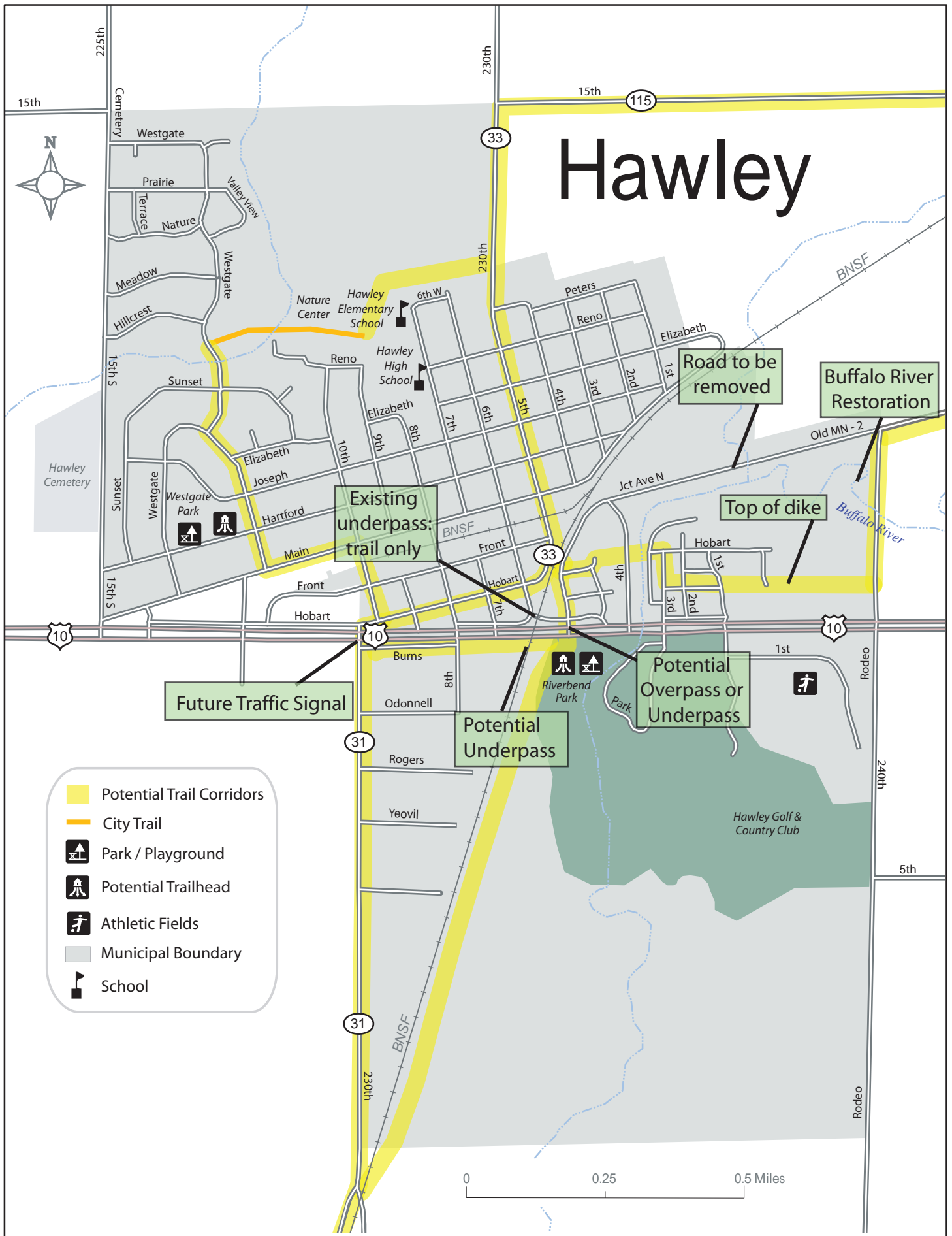
City staff and councilmembers have identified several potential trail alignments to and through the city, as shown on the city map on the following page.



Crossing U.S. 10 to reach park



Riverbend Park, Hawley



- Old Highway 2 within Hawley’s city limits is planned to be eliminated as part of a “re-meandering” of the Buffalo River – restoring the river to its original channel. However, a flood control dike on the south side of the river, originally created from dredge spoil when the channel was straightened, offers an option for a trail corridor. The dike ends at Laurance Street close to a pedestrian bridge that could be widened to accommodate a trail. From this point, a railroad crossing is needed. The existing underpass at Valley Street could potentially be redesigned as a trail connection, since Highway 10 also connects the area east of the tracks to downtown.
- An alternative option is to enter Hawley along County Road 115, which connects to County Highway 33 (5<sup>th</sup> Street), Hawley’s main north-south street. One challenge with this option is that the CR 15 bridge across the BNSF railroad would need replacement to accommodate a trail.
- If the CR 115 route is selected, the trail could connect to the Hawley Elementary School and High School campus and to the new Safe Routes to School trail, which connects to Westgate Drive. Westgate leads south to Westgate Park, which includes restrooms, a playground and a walking path, and could serve as a trailhead.

### **Hamden Slough National Wildlife Refuge**

The Hamden Slough National Wildlife Refuge provides a window on the transition from hardwood forest to prairie ecosystems. Prior to settlement, the diverse vegetation of this transition zone was attractive to wildlife, and the area teemed with waterfowl, upland birds, bison, wolves, and other prairie wildlife.

The goal of the National Wildlife Refuge is to re-establish almost 6,000 acres of prairie wetland habitat on the edge of the northern tallgrass prairie. Within the future boundary of the refuge, 280 wetlands will be re-established. Refuge staff has restored 235 wetlands since 1991. When fully restored, the refuge will provide the largest contiguous block of wetland prairie habitat in the region, encompassing nearly 6,000 acres.

The station's objective is to restore 3,000 acres of wetlands and 2,250 acres of upland grass. This will provide resting and nesting cover for 219 species of migratory and nesting birds. Currently, many species of waterfowl, shorebirds, neotropical migratory songbirds, and birds of prey rely on the shallow water and prairie habitat that has been restored on the refuge.

During the last six years, refuge habitat restorations have resulted in a dramatic increase in waterfowl, shorebird and prairie songbird populations. This has generated opportunities for wildlife-dependent recreation and serves as an educational model for land and watershed stewardship. Approximately 50% of the private property within the refuge’s future boundary has been acquired



Dike south of Buffalo River



CR 115 bridge over BNSF railroad



City trail at school complex



Hamden Slough NWR



from willing sellers. Approximately 15-20 years of work is anticipated to complete the refuge. The refuge is managed by the U.S. Fish and Wildlife Service, with an office in Detroit Lakes. Interpretive displays are provided at the refuge's southern entrance, and County Roads 13 and 14 offer bird and wildlife viewing opportunities.

## **Segment 5: Hawley to Moorhead**

### **Overview of the Alignment**

The trail alignment through this segment is located south of U.S. Highway 10 in order to provide access to Buffalo River State Park and the Bluestem Prairie Scientific and Natural Area (SNA). The trail would cross U.S. 10 at Glyndon and follow a combination of county and township roads west into Moorhead.

This segment falls within the Red River Prairie landscape (or ecological subsection), a flat glacial lake plain – the bed of Glacial Lake Agassiz – broken only by wetlands, meandering waterways and old beach ridges. The flatness of the terrain and the high northwesterly winds common in this part of the state can create some challenges for trail users. However, the opportunity to connect the major metropolitan area of Fargo-Moorhead to the native prairie and recreation opportunities at Buffalo River State Park, and to the lakes areas to the east, make this an important trail segment.

### **Criteria for Trail Alignment**

- Provide options for signalized or grade-separated crossings of U.S. 10
- Work with willing landowners to acquire right-of-way that showcases features of the landscape.
- Connect to and through trail communities wherever possible.
- Provide connections to Buffalo River State Park, the Red River, and other natural areas and features of the route.
- Minimize trail user exposure to vehicular traffic.
- Minimize impact on wetlands.
- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities.

### **Potential Trail Alignments**

From Hawley, the trail corridor will likely follow or parallel County Highway 31 south, then turn west to cross the railroad on or near 17<sup>th</sup> Avenue South. A series of township roads lead west and south of Maria Lake, providing some scenic views. Twelfth Avenue continues here as a minimum maintenance road, a scenic route used as a snowmobile trail in winter, offering some potential for

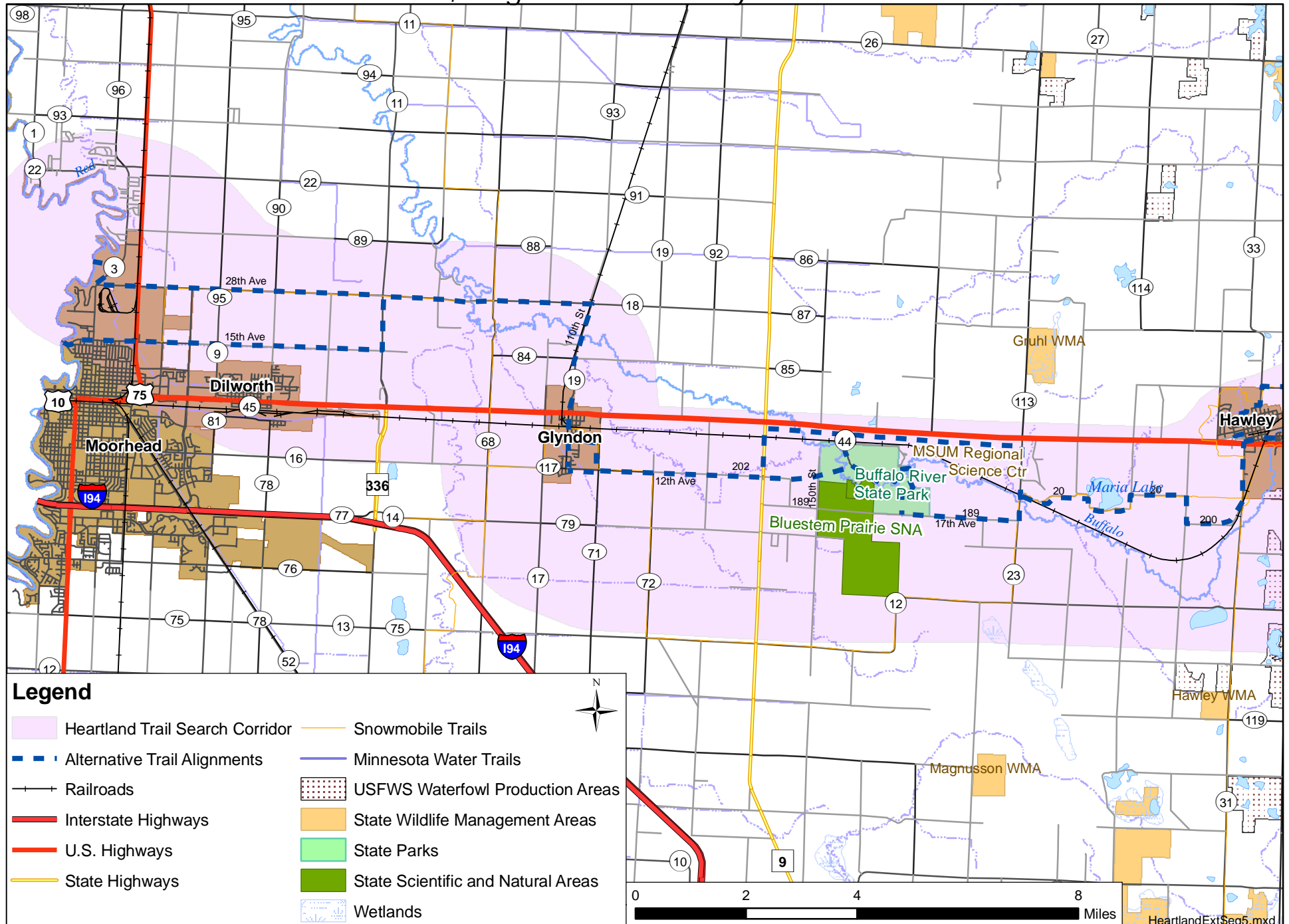


Maria Lake



12th Avenue - minimum maintenance road to Muskoda

# Heartland State Trail Extension, Segment 5: Hawley to Moorhead



trail use. At the hamlet of Muskoda the alignment crosses the railroad again and continues south on County Highway 23, crossing the Buffalo River. Seventeenth Avenue, a township road, continues west into Buffalo River State Park.

An alignment through the state park has not yet been finalized, but could potentially enter the park from the south (17<sup>th</sup> Avenue), follow an existing trail corridor to the Buffalo River, cross the river and continue to follow an existing trail to the picnic area/beach and parking area, which provides an important trailhead and rest area (see discussion below under Segment 5 Trail Connections).

The 1,310 acre Bluestem Prairie Scientific and Natural Area lies directly to the south and west of the state park. Parts of the SNA are included within the park's statutory boundary. Bicycles, motorized vehicles and horses are generally prohibited under SNA rules. However, opportunities to take advantage of prairie and wildlife viewing opportunities in the SNA should be explored.

Another potential alignment shown on the Segment 5 map runs between U.S. 10 and the BNSF railroad between County Highway 23 and Trunk Highway 9. This alignment would provide a trail connection to the state park via the existing entrance road. However, it would require either closely following the U.S. 10 right-of-way or securing an alignment through a number of private properties.

The trail could exit the park via the entrance road and then continue west between U.S. 10 and the BNSF railroad to TH 9, then south to 12<sup>th</sup> Avenue. Another alternative would be a connection through the park and across adjacent properties to 12th Street. Either alternative would require an additional crossing of the Buffalo River.

As shown on the Segment 5 map, the alignment could continue along 12<sup>th</sup> Avenue with a connection into Glyndon along one of several city streets. Glyndon offers a variety of stores and restaurants and several small parks that could act as trailheads. A signalized crossing would enable the trail to cross U.S. 10.

North of Glyndon, the trail alignment is constrained by the need to cross the Buffalo River. County Highway 19/110<sup>th</sup> Street, which parallels a now abandoned MNN Railroad grade, runs north of the city. The railroad grade itself offers a potential alignment, if landowner agreements can be secured. The Highway 19 bridge over the Buffalo is scheduled for replacement, and the pilings of the former railroad bridge are still in place. Either the highway bridge or the former railroad bridge could potentially accommodate the trail.

From this point, 110<sup>th</sup> Street continues north to County Highway 18, which runs directly west to Moorhead, a distance of about seven miles. County 18 is the only highway that provides a river crossing in this area, and is a popular scenic



Neighborhood park in Glyndon

route with recreational cyclists in the area. However, it has narrow shoulders and is closely bordered by cultivated fields, creating challenges for siting an off-road trail. Another option that should be explored is the use of the top of one or more of the dikes managed by the Buffalo-Red River Watershed District that border some roads in this area. CR 83, a mile south of County Highway 18, has a fairly extensive dike system that leads directly to Centennial Park, a potential trailhead.

An important goal for the Heartland Trail Extension is a connection to the Red River of the North and to the extensive greenway system that is currently being developed on both sides of the river. There are several options for this connection through the City of Moorhead, as shown on the Segment 5 map and discussed below under Trail Communities and Connections.

## **Segment 5 Trail Communities and Connections**

### **Buffalo River State Park**

Prairie is the key feature of this 1,322-acre state park located 14 miles east of Moorhead. The prairie within the park, and the adjoining Bluestem Prairie Scientific and Natural Area (SNA), is judged to be one of the largest and best of the state's prairie preserves. The landscape contains more than 250 species of wildflowers and grasses including some plants now rare in Minnesota. The Buffalo River that runs through the park is bordered by a river bottom forest of elm, ash, cottonwood, oak, and basswood.

Visitors to the park enjoy a variety of recreational opportunities in this beautiful natural setting. The sand-bottomed swimming pool with adjacent picnic ground is one of the most popular recreation amenities. A full-service campground and a primitive group camp are also located in the park.

Park visitors can experience the park's resources on a system of trails, including 12 miles of hiking trails and 6 miles of cross-country ski trails. A one-mile interpretive trail provides information about the prairie environment.

Many of the special attributes identified for the Bluestem Prairie SNA (see below) are also found within the state park. In addition, the park supports terraced river floodplain, as well as a population of federally listed Western Prairie Fringed Orchids. Due to the extreme risk of introducing invasive species and further fragmenting this very sensitive habitat, care should be taken to develop trails and associated amenities along existing corridors. Snowmobiles should remain on the paved park drive if allowed to enter the park. (Snowmobiles are not currently allowed in the park.)



**Dikes along County Road 83 near Moorhead**



**Buffalo River State Park picnic area and beach**



**Buffalo River State Park picnic area and beach**



About 240 acres in the southwest section of the park is owned by the Nature Conservancy, and is managed as part of the Bluestem Prairie SNA. The trail alignment would not be located in this area.

Any vegetation management within the boundaries of Buffalo River State Park must be approved by park or resource management staff, due to the fragile nature of the high quality natural resources present within the park.

A tentative alignment through the park is indicated on the Segment 5 map. The trail could enter the park on an existing right-of-way near its southeast corner and turn east to join the existing River View Trail, which crosses the Buffalo River and leads into the main activity area of the park (parking, campground and swimming beach). This alignment could then continue north along the park entrance road, or follow other existing trails to the west side of the park.

The following objectives were identified to guide the location of the trail alignment through the park:

- Provide a paved corridor.
- Provide parking for trail users.
- Provide a rest area for trail users.
- Provide trail and park orientation information.
- Provide a connection to the campground.
- Provide access to the contact station.
- Protect archaeological resources.
- Use existing corridors where feasible.
- Avoid severing plant communities.

### **Bluestem Prairie Scientific and Natural Area**

The Bluestem Prairie SNA is located on the north and south sides of 17<sup>th</sup> Avenue, bordering Buffalo River State Park and including some lands within the park's statutory boundary. The SNA is an extensive remnant of "a vast sea of natural grassland" that at one time covered the entire Red River valley. It is also one of the highest quality prairie sites in the U.S. Lying within the Glacial Lake Agassiz bed, it contains two significant shorelines, the Norcross and Campbell Strandlines. Uplands contain mesic tallgrass prairie, while low swales contain wet blacksoil prairie with sedge meadow and calcareous fen communities. Plant species found here include the rare sticky false asphodel, alkali and slender cordgrass, small white lady slipper, and a rare sedge. Fauna species include regal fritillary, melissa blue, prairie vole, plains pocket mouse, northern grasshopper

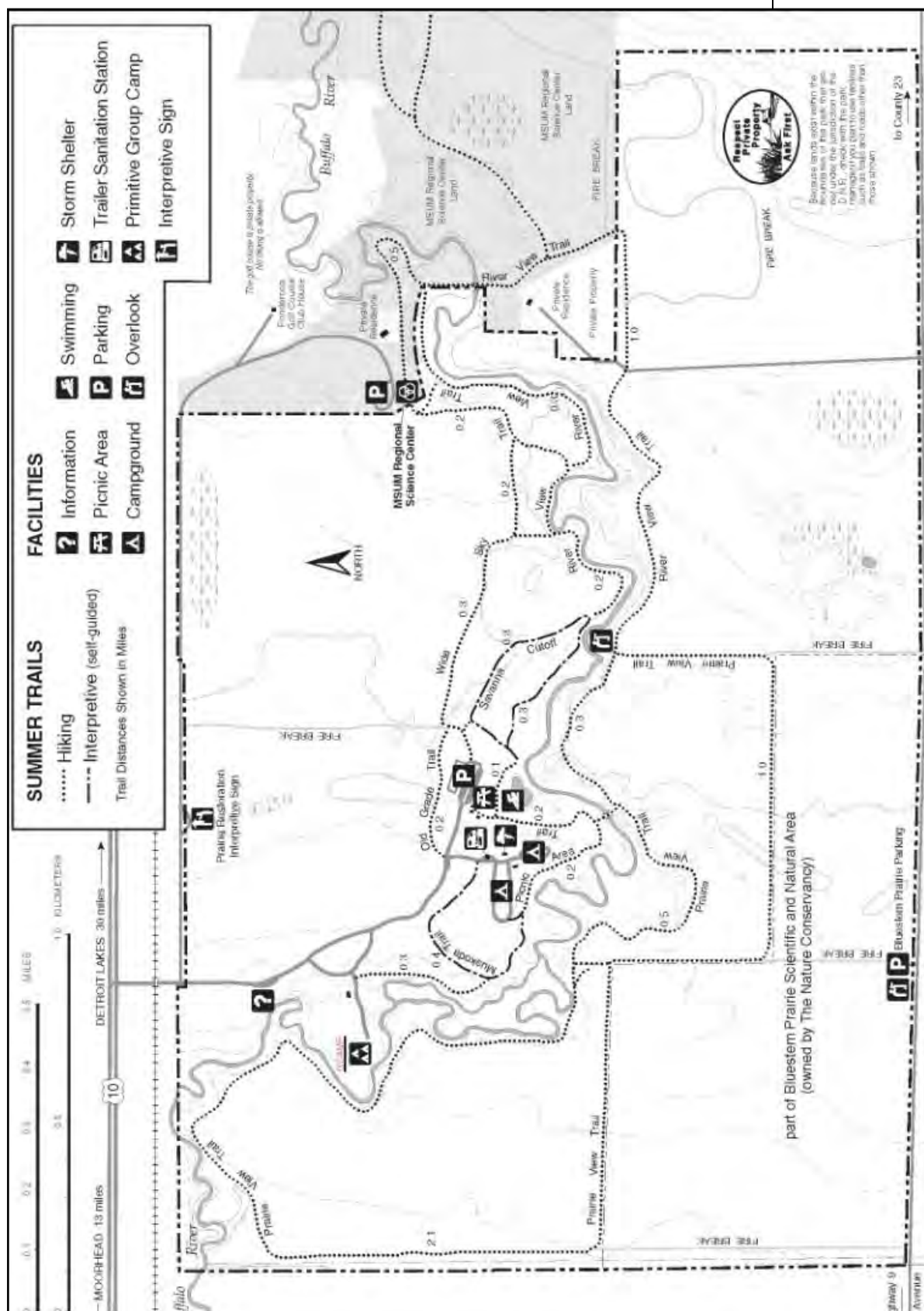


Potential trail entrance from 17<sup>th</sup> Avenue into Buffalo River State Park



Bluestem Prairie SNA

## Buffalo River State Park





mouse, Henslow's sparrow, upland sandpiper, marbled godwit, eastern meadowlark, loggerhead shrike, and greater prairie chicken. Blinds for viewing the prairie chickens' courtship behavior in April are provided.

Bluestem Prairie is a public use SNA where activities such as photography and bird watching are allowed; however, SNA rules prohibit activities such as construction of structures/facilities, horseback riding, dog or pet walking, picnicking, motorized vehicle use and similar activities. Any visitation type has the potential to introduce or spread invasive species to or within the SNA. Therefore, a paved trail would not be located within the SNA, and certain uses might be restricted near the SNA. However, opportunities for connections to bird watching and prairie viewing locations should be explored.

## **Glyndon**

### *History*

Glyndon was platted as a railroad village in the spring of 1872. The oldest village in the county began as a tent village, with houses later built over the tent structures. Like most of the other railroad towns, it was named by officers of the Northern Pacific Railroad Company, for a popular writer of *Atlantic Hearth and Home*, Laura Catherine Redden Searing, who used the name Howard Glyndon as a nom de plume. The village was organized in 1875, incorporated as a village on February 14, 1881, and reincorporated on April 6, 1908.

### *The Community Today*

Glyndon's population was 1,049 people as of the 2000 census, and was estimated at 1,178 in 2008. The city offers several parks and a variety of restaurants to trail users. Johnson Park, at 12<sup>th</sup> Street and Parke Avenue, is a small neighborhood park with a picnic shelter; Glyndon Park and Community Center, at 2<sup>nd</sup> Street and Eglon Avenue, includes a playground and basketball/volleyball courts; however, neither park has restroom facilities.

### *Trail Alignment*

From Buffalo River State Park, several county or township roads lead into Glyndon, including 12<sup>th</sup> Avenue (C.R. 72) and 110<sup>th</sup> Street. Within the city, Parke Avenue provides a signalized crossing of U.S. 10. Glyndon offers a variety of stores and restaurants and several small parks that could act as trailheads.

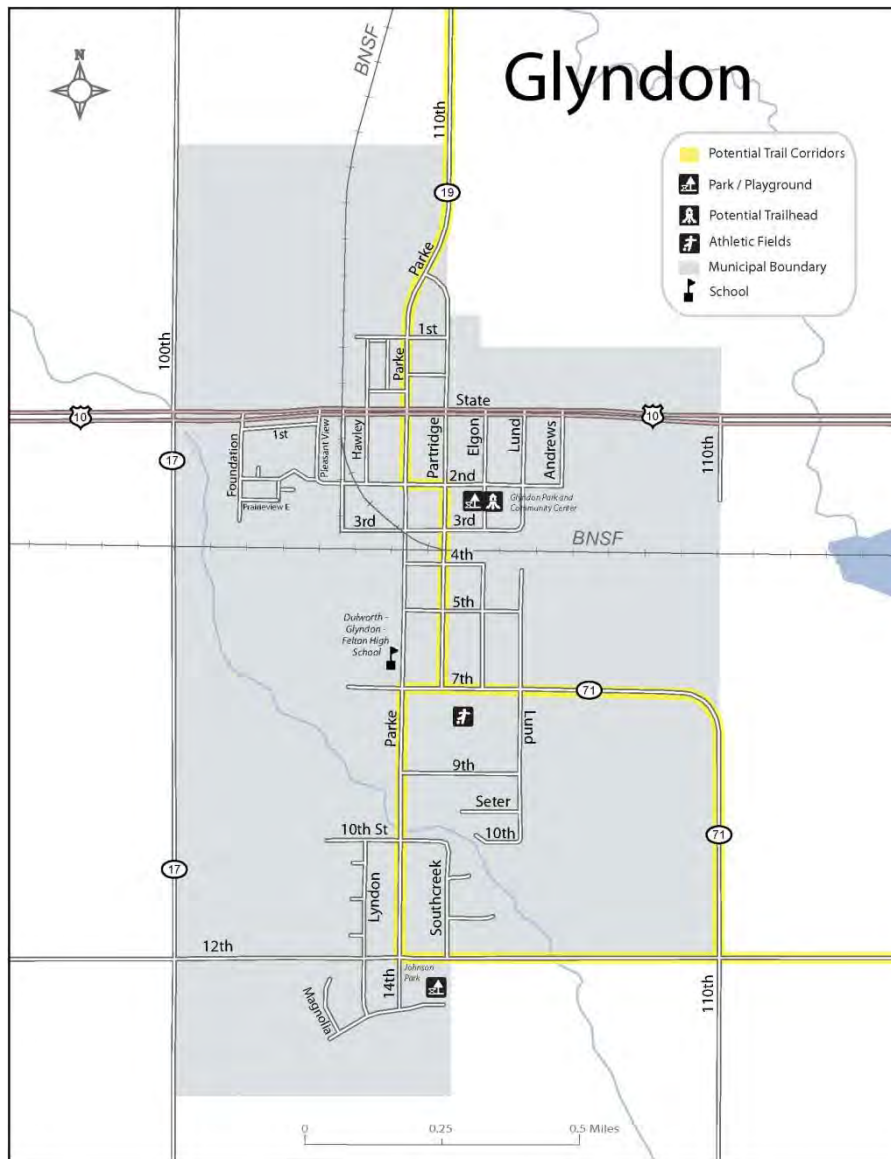
## **Dilworth**

### *History*

Dilworth began in 1883 as a railroad siding, called Richardson for a few months, then renamed to honor coffee importer Joseph Dilworth, one of the original stockholders and a director of the Northern Pacific Railroad, residing in



Pittsburgh, Pa., who purchased 4,000 acres in the vicinity and became one of the largest landholders along the railroad.



Until 1906 Dilworth was a small station with a siding serving two grain elevators and had no depot building or agent. The crowding of the Northern Pacific sites in Fargo necessitated the selection of a new site for divisional terminal facilities and Dilworth was chosen. By July 1906, the Northern Pacific had purchased nearly 500 acres of land around the Dilworth siding for the new headquarters. A main feature of the facility was the roundhouse, a huge building shaped like a doughnut with a bite out of it. In the center of the doughnut hole was a turntable, like a big Lazy Susan. A locomotive was driven onto the turntable

which rotated the engine toward one of 45 stalls. In the stall the locomotive was repaired and refitted. Then the engine backed out onto the turntable and spun about to pull another train back the other direction.

The townsite was platted in 1906, and the post office began in 1907. By 1910, Dilworth was home to a bank, two hotels, a grocery store, a dairy, a meat market, a bakery, at least two restaurants and a barbershop. Some 498 people lived in Dilworth and nearly 70% of them worked for the railroad.<sup>3</sup> The village was often called Little Italy for the large Italian immigrant group who settled there. In 1911 the village was formally incorporated.

#### *The Community Today*

Dilworth is the fastest growing community in Clay County; its population was estimated at 3,684 in 2008, an increase from 3,001 in 2000.

The community provides a diversity of services and recreational amenities for trail users. Eleven city parks and a municipal pool provide multiple recreational opportunities and a variety of restaurants provide food and beverages.

#### *Trail Alignment*

A specific trail alignment through the community has not been identified. The possibility that the trail corridor will be located along County Highway 18 or CR 83 to the north of the city means that a spur trail would be needed to provide a connection to Dilworth. A spur trail could follow 50<sup>th</sup> Street, a north-south township road that becomes 7th Street within the city.

The community identified Whistle Stop Park, at 4<sup>th</sup> Street and US 10, as a potential trailhead site.

## **Moorhead**

### *History*

The city was founded in 1871 and named for William G. Moorhead, a director of the Northern Pacific Railway. Historically, Moorhead served as a transportation hub due to its strategic location on the Red River of the North. Located at a natural crossing point of the Red River, early Moorhead functioned as a transfer point for goods and passengers traveling between Minneapolis/St. Paul and Winnipeg, Manitoba. Goods were hauled by oxcart from St. Paul to Moorhead and transferred on the riverboats that traveled north. Furs from the Hudson Bay Company were transported south along the route. The coming of the

<sup>3</sup> City of Dilworth, Minnesota. History.

[http://www.dilworthcitymn.com/index.asp?Type=B\\_BASIC&SEC={45B23B85-8EFB-4F80-9398-BA3E1D04216D}](http://www.dilworthcitymn.com/index.asp?Type=B_BASIC&SEC={45B23B85-8EFB-4F80-9398-BA3E1D04216D})



Development along U.S. 10 in Dilworth



railroad replaced the oxcarts and spurred the growth and development of the area. Logging and agriculture were also important in the surrounding area, and agriculture, especially sugar beet production, remains so today.

### *The Community Today*

Moorhead is the Clay County seat, and the largest community in Northwestern Minnesota, with a population of 32,177 according to the 2000 census, and an estimated population of 36,228 in 2008. Moorhead is part of the larger Fargo-Moorhead metropolitan area, with a population of 140,000.

Business, education, the arts, and recreation thrive in the Fargo-Moorhead area. There are a variety of historic sites, businesses, services, and recreation amenities that would be of interest to state trail users. The Hjemkomst Center houses a replica of a Viking ship that sailed to Norway, as well as a full-scale replica of the Hopperstad stave church in Vic, Norway. The Clay County Historical Society operates the Clay County Museum and Archives located in the Hjemkomst Center. The collections and displays tell the story of the county's past.

Additional historic points of interest include the Bergquist Pioneer Cabin, built by a Swedish immigrant, the oldest house in Moorhead still on its original site. Another historic house, the Comstock House, is an 1882 Victorian home of a state senator and founder of Moorhead State University. The Rourke Art Gallery, located in a historic 19th century mansion and Rourke Art Museum, located in the historic Moorhead Post Office building, contain art collections featuring local, regional and national artists.

The Red River, forming the boundary between the states of Minnesota and South Dakota and the communities of Moorhead and Fargo is a scenic and recreational amenity. The Heartland State Trail Extension should provide connections to the river, views of the river, and opportunities to learn about and to experience the river. One such opportunity is the pontoon boat tours on the Red River Ruby located adjacent to Hjemkomst Center.

The Red River Valley is rich agricultural land. Sugar beets are a major crop and Moorhead functions to support the farm economy as a service center.

Moorhead is also an education center. Concordia College, a four year private college; Minnesota State University, Moorhead, a public university, Minnesota State Community and Technical College, a 2-4 year technical college, Rasmussen College and Minnesota School of Business are located here.

### *Trail Alignment*

The two primary options for a trail alignment through Moorhead are County Highway 18, which leads to M.B. Johnson Park, and County Road 83 (15<sup>th</sup> Avenue N.), which leads directly to Centennial Park. Both are large regional



Centennial Park

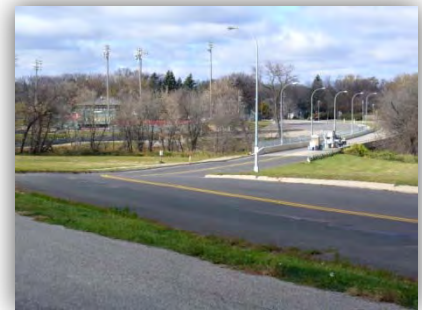


parks that offer benefits as potential trailheads. With ample parking, restrooms and picnic facilities, Centennial Park would be convenient for local trail users, with good access from city trails and bike paths. Fifteenth Avenue continues west from the park to a toll bridge crossing of the Red River, providing access to the Red River trail system on the west bank of the river.

M.B. Johnson Park, a short distance north of County Highway 18, is Moorhead's largest regional park, and is currently being redeveloped by the City to include a newly constructed park building/shelter, wetland and prairie restoration, sanitary sewer and water utilities, a play area, and the reconstruction of a portion of the roadway. Picnic tables and trail improvements are also included in the project.<sup>4</sup> A proposed bridge would link trails within the park to the trail system on the west bank.

An important goal of this plan is to extend the Heartland Trail to the Red River. Fargo and Moorhead are collaborating to extend the existing shared use path system/trail system on both sides of the river for both flood protection and recreation.<sup>5</sup> On the west side of the river, trails currently extend south from 15<sup>th</sup> Avenue N. to the I-94 corridor, with connections to a trail network in downtown Moorhead. These trails connect to Moorhead's Hjemkomst Center, which hosts several outdoor festivals and offers river tours and canoe rentals in addition to its historical and cultural exhibits.

Fargo-Moorhead Metro Council of Governments (Metro COG) is the metropolitan planning organization that is responsible for transportation planning in the region. Metro COG is currently engaged in an update of its Metropolitan Bicycle and Pedestrian Plan, last updated in 2006. The plan is the Fargo-Moorhead Metropolitan Area's guidance document for bicycle and pedestrian planning and implementation for the next twenty years. The updated Metropolitan Bicycle and Pedestrian Plan will include the Heartland State Trail Extension as part of the future regional bicycle network.



Bike path and river crossing at 15th Avenue N.



New park building, M.B. Johnson Park



Red River, M.B. Johnson Park

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<sup>4</sup> [http://www.cityofmoorhead.com/parks/facilities/projects/pdf/MB\\_Johnson\\_site\\_plan.pdf](http://www.cityofmoorhead.com/parks/facilities/projects/pdf/MB_Johnson_site_plan.pdf)

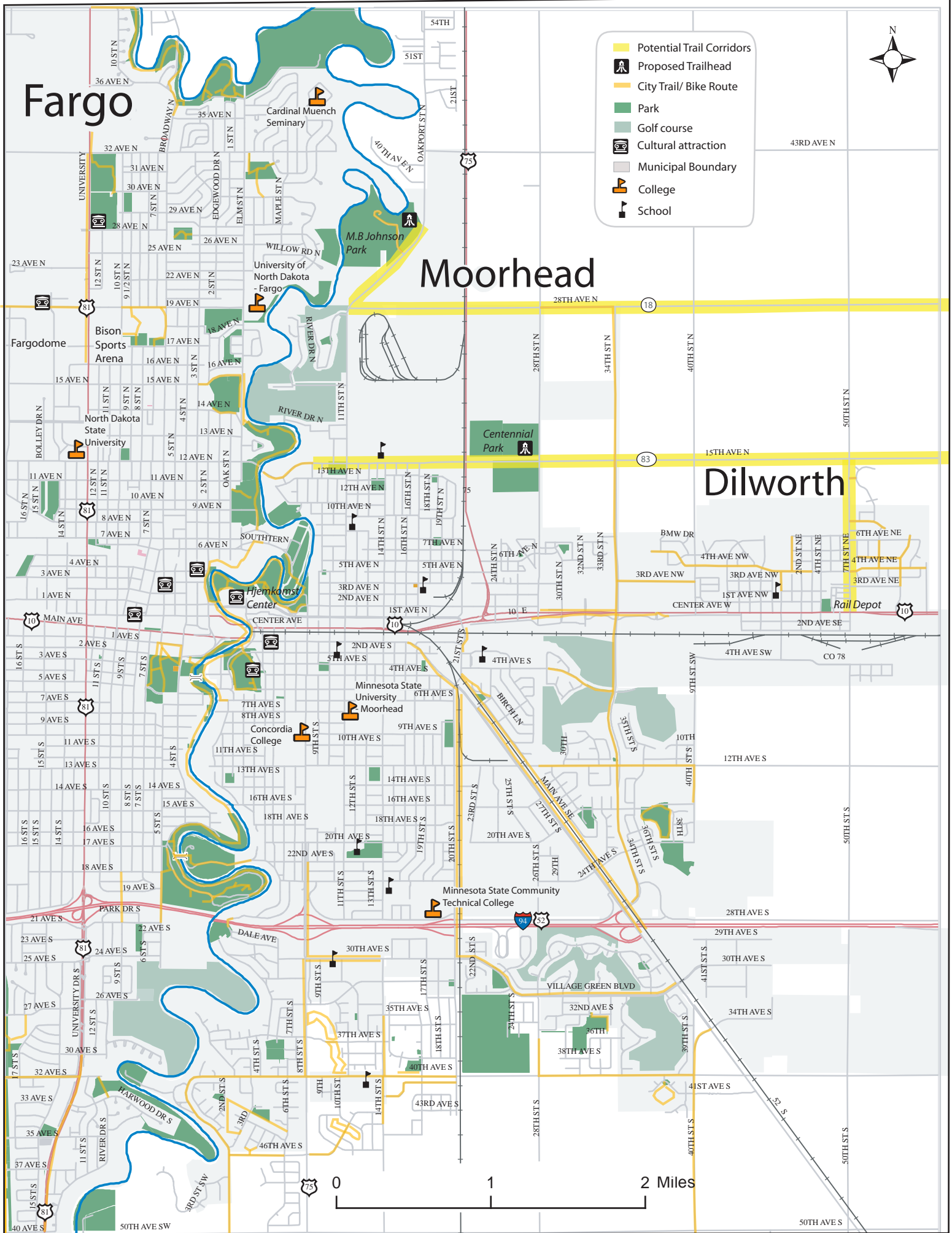
<sup>5</sup> *Red River Greenway Study*, July 2008. Prepared by Fargo-Moorhead Metropolitan Council of Governments (Metro COG).

# Fargo

# Moorhead

# Dilworth

- Potential Trail Corridors
- Proposed Trailhead
- City Trail/ Bike Route
- Park
- Golf course
- Cultural attraction
- Municipal Boundary
- College
- School





## 4. Trail Management

### Projected Trail Use

#### Existing State Trail Use as an Indicator of Future Heartland Extension Trail Use

It is anticipated that the number of trail users and pattern of use will be similar to what is occurring on other state trails, and specifically on the existing Heartland State Trail between Park Rapids and Cass Lake. While state trail use is lower in many areas than it was in the 1990s, the Heartland Trail received fairly high levels of use when last surveyed in 2007, with 74,419 user hours in the summer season (a trail user spending one hour on the trail is a “user hour”). Over 50% of trail user hours are concentrated in the area between Park Rapids and Nevis.

Surveys showed that the Heartland Trail receives high levels of tourist use. The majority of use (54%) comes from tourists, who have traveled at least 100 miles from home. Local users (within 10 miles of home) comprise about one-third of trail use.

Bicycling is the most popular summer activity, with 65% of trail users, followed by walking/hiking, with 24%. Other activities such as running and in-line skating range from 3% to 5% of users.

State park attendance figures also indicate the numbers of recreational users in the area.

#### 2009 State Park Annual Attendance (in visitor-days)

Itasca State Park: 489,664

Buffalo River State Park: 108,227

Trail use will vary by segment and proximity to communities and area attractions. For example, a connection from the city of Moorhead to Buffalo River State Park is likely to attract high numbers of local trail users, as is the Frazee-to-Detroit Lakes segment. Other trail segments around Detroit Lakes and Park Rapids are more likely to attract tourists who may be vacationing in those areas.

### Trail Maintenance

Adequate maintenance of the Heartland Extension State Trail is critical to provide and sustain the experience trail users appreciate. Maintenance activities are numerous and diverse, as the following list illustrates. Specifically, maintaining the Heartland State Trail Extension will include:

- Monitoring trail conditions, which includes scheduling and documentation of inspections; monitoring the condition of railings,

bridges, trail surfaces, and signage; hazard tree inspection; and removal of debris such as downed trees

- Scheduling of maintenance tasks
- Mowing of vegetation: shoulders, rest areas, and parking lots (see Recommendation 3 below)
- Winter grooming and plowing
- Tree and shrub pruning
- Trash removal
- Trail repair – fixing washouts and controlling erosion are examples
- Maintaining bridge decking and railings
- Trail drainage control
- Trail surface maintenance
- Repair of animal damage to trail or facilities
- Checking and repairing fence lines and gates
- Mowing and brushing farm crossings
- Cleaning out ditches and culverts, replacing failing culverts
- Controlling invasive species
- Maintaining equipment
- Painting posts and picnic tables
- Graffiti control and vandalism repair, especially to signs
- Maintaining boundary signs, and working to resolve encroachment issues
- Coordination of volunteer efforts
- Training and supervision of employees, Conservation Corps of Minnesota, or Sentence to Service crews
- Sweeping asphalt surfaces

In areas with sensitive natural resources, such as Buffalo River State Park, and at any water accesses along the corridor, the Parks and Trails Division would follow the guidelines established under Operational Order #113, “Invasive Species,” in consultation with the Division of Ecological and Water Resources. The guidelines prescribe methods for avoiding the introduction or spread of invasive species, and managing and treating infestations of such species.

## Maintenance Recommendations

**Recommendation 1:** Additional maintenance funds will be required to maintain the trail after it is developed.

**Recommendation 2:** The trail should be seal coated approximately six years after initial development. Research shows that this will prolong the life of the trail.

**Recommendation 3:** Consideration should be given to mowing remnant and restored prairie once in the fall to retain robust prairie species and reduce the risk of introducing invasive species. Resource management staff will provide additional direction regarding maintenance within Buffalo River State Park and near the Bluestem Prairie SNA.

**Recommendation 4:** Prescribed burning on prairie areas should be a priority maintenance practice. Portions of the trail may need to be closed during a prescribed burn event.

## Information and Education

### Trail User Orientation

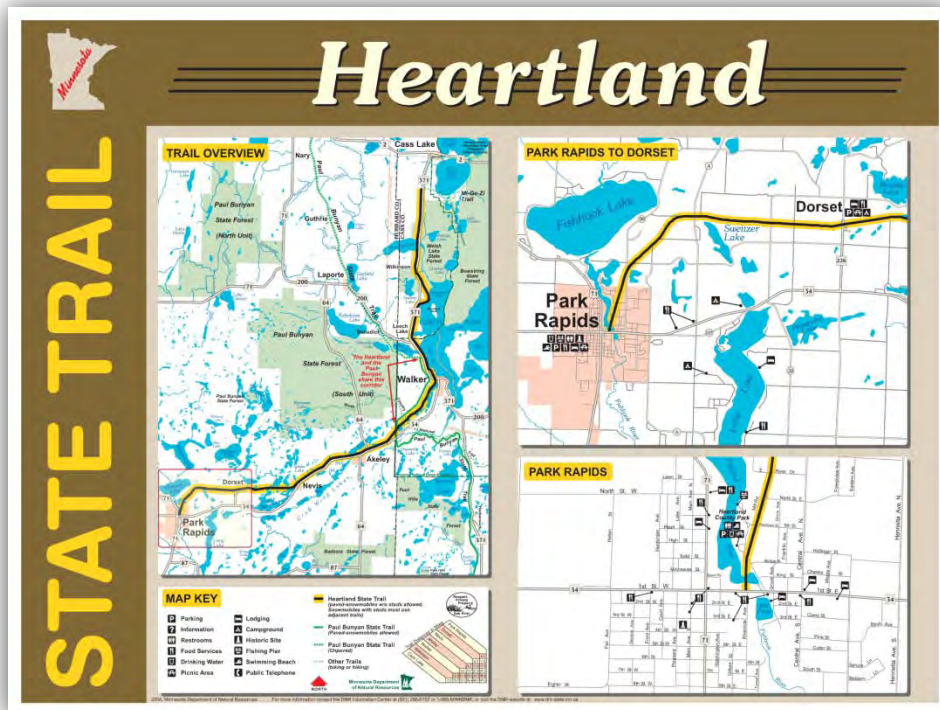
Trail users must have good information about the trail system so they can make choices about destinations appropriate for their time frame, skill level, need for services such as food and lodging, links to regional or local trails, and the type of scenery and other recreational opportunities available along the route. This type of information should be displayed on information boards at parking areas, in communities and at trail junctions. It should be available on maps, and on the DNR Website. It should include distances between communities, options for other trail connections and locations of services. If any significant deviation from the typical trail design occurs – e.g., when a trail enters a community – it should be noted on signs or informational kiosks to assist trail users in understanding what the trail experience will be.

### Identification of Services

Trail users benefit from knowing where they can obtain services (medical assistance, telephones, gasoline, food, lodging, restrooms, campgrounds, repair facilities, or other retail) and local businesses benefit from an increase in customers. A listing of the services available in each community developed, maintained and updated by the community could be displayed on information boards at parking areas in each community.



Examples of trail orientation and interpretation signs



### Trail Rules and Regulations and Trail Courtesies

Trail courtesy and safety information aimed at educating trail users about appropriate behavior, promoting safe trail use, and protecting the quality of the trail environment should be developed and posted at trailheads and other key locations.

Volunteer trail ambassadors could be used to distribute information on appropriate trail behavior and etiquette relative to specific problems such as unleashed dogs, passing of other users, and the need to clean equipment to prevent the spread of invasive species.

### Interpretation of Natural and Cultural Resources

There are many natural and cultural resources of significance and interest along the trail. These include varied topography, native vegetation, wildlife habitat, wetlands, rivers and lakes. In addition, there are many places that tell the history of this region. Providing information about these resources can add enjoyment to the trail experience.

One or more interpretive themes are identified for state trails during the planning process. The interpretive theme helps tie together spatially separated interpretive sites and provides continuity in the messages presented.

The original *Heartland State Trail Master Plan*, prepared in 1979, identified the interpretation of Minnesota's Pine Moraines Landscape Region (now known as

the Pine Moraines and Outwash Plains Ecological Subsection) as a primary theme, with three areas of emphasis:

- Native American history and modern society
- Early European exploration and settlement patterns
- Social and land use patterns today

The Heartland State Trail Extension will encompass three ecological subsections, extending from the Pine Moraines and Outwash Plains through the Hardwood Hills to the Red River Prairie. It would be appropriate to focus the trail's interpretation around the theme of "landscape transitions," emphasizing both the change in landscapes from east to west and the changes over time.

Some potential interpretive areas of emphasis under this broad theme include:

- Human use of the land over time; human influence on the landscape, i.e. from prairie to agriculture, prairie restoration
- Native American settlement patterns and use of resources
- Transportation patterns: from oxcart trails to railroad to highways
- Historic and current farming practices
- History of tourism in the lakes regions

Interpretive signs will be developed in consultation with other DNR divisions and the Minnesota Historical Society (MHS). Some initial ideas are listed above. Additional sites will be interpreted over time. Interpretive sites should be developed in coordination with the Scenic Byways Program throughout the Trunk Highway 34 (Lake Country Scenic Byway) corridor.

Each state park has interpretive themes, programs, and signs for interpreting its cultural and natural resource setting covering the themes identified for the state trail as well as others. Coordination between park and trail interpretation and programming will benefit park visitors and trail users.

### Information and Education Recommendations

**Recommendation 1:** *Develop a kiosk and trail logo design that reflects the interpretive theme for the trail that can be used in communities and at rest areas along the trail. Use of native stone should be used in the design of kiosks and/or sites as they are located.*

**Recommendation 2:** *Community services information, trail orientation, trail rules and trail courtesy information should be developed and installed on a kiosk at the same time the trail is developed.*

**Recommendation 3:** *Parks and Trails staff should cooperate with schools to use the trail for environmental education purposes.*

**Recommendation 4:** Interpret the natural and cultural features along the trail. Coordinate development with the Scenic Byways Program. Include information on the fishing opportunities of the trail. The Division of Fisheries local offices and MinnAqua staff should be consulted as resources.

## Enforcement

Adequate enforcement was cited by participants in the planning process as a way of resolving potential problems and addressing concerns. Minnesota State Trails are very safe and generate very few complaints. However, adequate enforcement is a vital aspect of maintaining a safe and secure trail environment. User conflicts, unauthorized use of the trail, and trail users leaving the treadway designated for their use were among the concerns identified during the planning process, and are all likely areas for enforcement.

Enforcement of state trails rules and regulations, information and education, trail design, trail maintenance, and the mix of trail uses are all factors that contribute to the maintenance of a safe, secure trail environment. The DNR has the primary responsibility for law enforcement on DNR-owned and operated recreation areas. Enforcement assistance is also sought from local police departments and county sheriffs as necessary.

The DNR's goal is to deal with issues as they arise and provide an adequate level of enforcement to maintain a safe and secure trail environment, to encourage trail users to understand and obey trail rules and respect other trail users and adjoining properties.

## Recommendations for Enforcement

**Recommendation 1:** Provide an adequate level of enforcement via a multifaceted approach, to help maintain a safe and secure trail environment, and to encourage trail users to understand and obey trail rules, and respect other trail users and adjoining properties.

**Recommendation 2:** Develop on-site information that targets important trail courtesies and rules necessary for a safe and enjoyable experience, specific to uses of a particular segment and problems and conflicts occurring there.

**Recommendation 3:** Increase visibility of Parks and Trails staff during peak use times for an enforcement effect.

**Recommendation 4:** Investigate the feasibility of a state trail ambassadors program to communicate with trail users regarding trail safety and etiquette.

**Recommendation 5:** Parks and Trails will include the cost of enforcement when providing information about the cost of the trail when communicating with legislators, trail advocates, and local government officials.



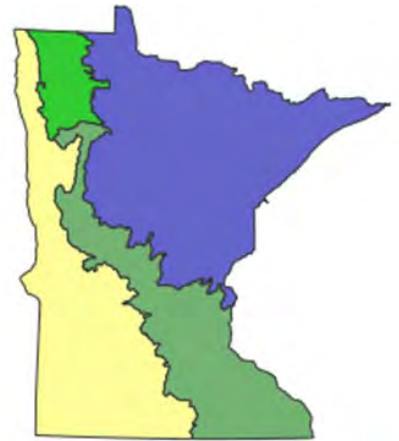
## 5. Trail Corridor Resources

### Ecological Classification System

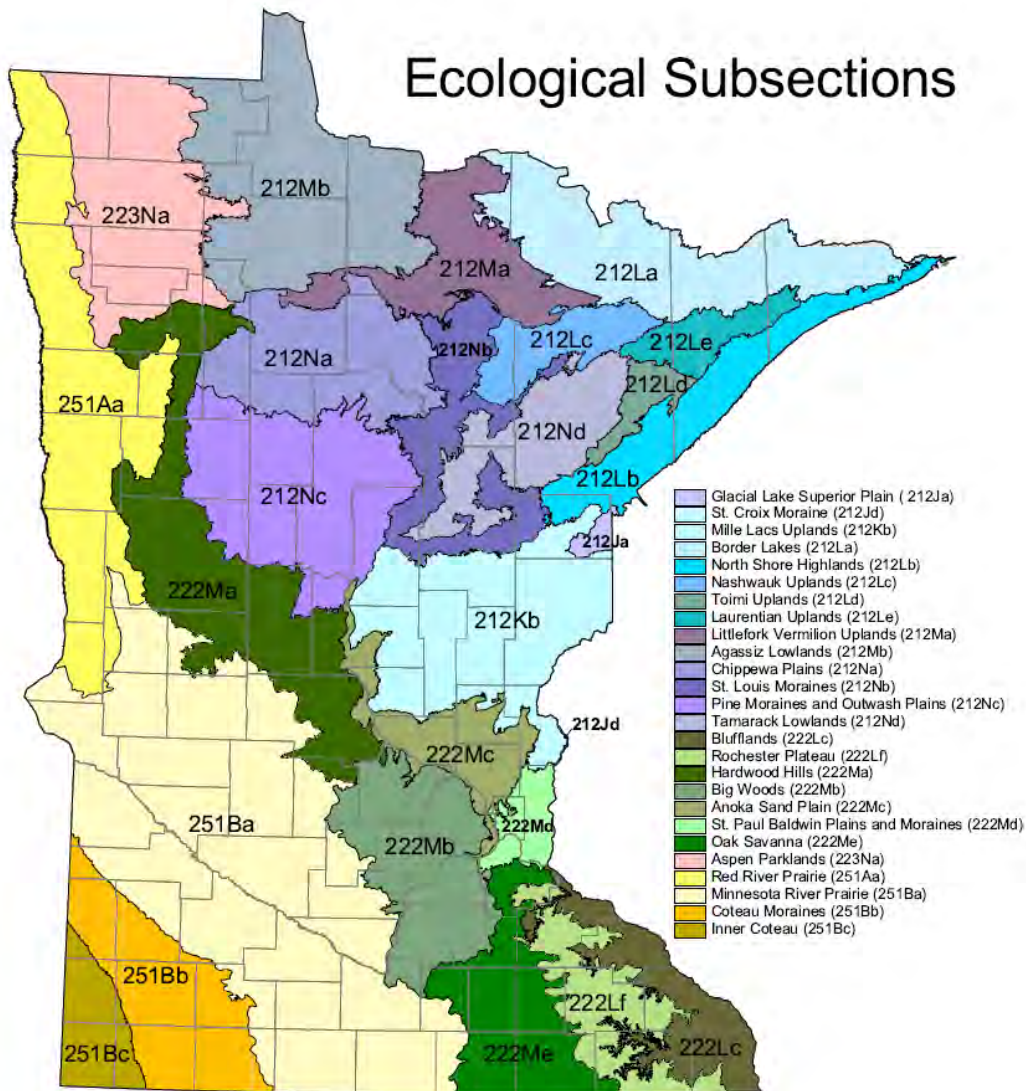
Minnesota lies at the center of North America where the prairie, boreal forest, and eastern deciduous forest meet. There are four major ecological provinces in Minnesota: the Eastern Broadleaf Forest, the Laurentian Mixed Forest, the Prairie Parkland, and the Tallgrass Aspen Parklands. All four are parts of much larger systems that cover major areas of central North America. The Eastern Broadleaf Forest Province, primarily made up of deciduous forest, extends eastward from Minnesota all the way to the Atlantic Ocean. The Laurentian Mixed Forest Province, largely consisting of coniferous forest, extends northward into Canada. The Prairie Parkland Province extends westward into the Dakotas and across the Central Plains of the United States. The Tallgrass Aspen Parklands Province represents the southern tip of a large province that extends north and west into the Canadian Prairie Provinces.

These ecological provinces are divided into subsections – distinct landscapes of Minnesota, defined by vegetation, geology and other resource criteria. The Heartland Extension State Trail is located in three subsections of the state's ecological classification system – Red River Prairie (251Aa), Hardwood Hills (222Ma), and Pine Moraines and Outwash Plains (212Nc). See the map below for the location of these subsections.

These diverse landscapes are a defining feature of this trail. Because the trail crosses three subsections, each of which falls within a separate ecological province, trail users will experience a great diversity of topography, plant communities, and land uses. The 80-plus-mile trail will connect trail users with prairie, forest and wetlands; beach ridges, hills, and flat terrain; lakes, rivers, and wetlands. A description of the subsections is important for trail planning purposes because it provides the context for trail alignment, trail development, resource management and interpretation recommendations. The following descriptions are drawn from the DNR website, <http://www.dnr.state.mn.us/ecs/index.html>.



The four major ecological provinces in Minnesota: Eastern Broadleaf Forest (green), Laurentian Mixed Forest (violet), Prairie Parkland (yellow) and Tallgrass Aspen Parklands (bright green)



## Pine Moraines and Outwash Plains Subsection

This subsection, part of the Laurentian Mixed Forest Province, is named for its mix of end moraines and outwash and till plains and is a resource-rich, heavily forested area. The subsection contains sections of the Mississippi River, along with hundreds of lakes, including Leech, Itasca, Ten Mile, Upper and Lower Whitefish, and Gull. Kettle lakes and wetlands are common on the outwash plains. Before this area was settled by people of European descent, forests of jack pine mixed with northern pin oak were most common on outwash plains, and aspen, birch and pine forests were the most common on end moraines.

Forest management and tourism are the predominant land uses in this subsection today. The bait industry is also well represented here. Motorized recreation is popular in many of the state forests in this area. Agriculture is common in the western part of this subsection.

**Landform.** This subsection consists primarily of large outwash plains, narrow outwash channels, and end moraines (Hobbs and Goebel 1982). The moraines are relatively large and were formed from portions of several glacial lobes. Most of the glacial drift was sandy, but there is loamy drift to the north.

**Hydrology.** Kettle lakes are common on pitted outwash plains and within stagnation moraines. There are hundreds of lakes within the subsection that have a surface area greater than 160 acres. The headwaters of the Mississippi River (Itasca Lake in Itasca State Park) is in this subsection. Other large rivers flowing through the outwash plains of the subsection include the Pine and Crow Wing rivers.

**Bedrock Geology.** Thick glacial drift covers bedrock over most of the subsection. Thicknesses range from 200 to over 600 feet, with the greatest depths in the southwestern portion. A diversity of Precambrian rock underlies the glacial drift. There are also iron formations at the southeastern edge of the subsection, along with argillite, siltstone, quartzite, and graywacke. Cretaceous marine shale, sandstone, and variegated shale are localized in the southwest.

**Climate.** Total annual precipitation ranges from 23 inches in the northwest to 27 inches in the east, with about 40% occurring during the growing season. Only 12 to 16% of the annual precipitation falls during winter months. Growing season length varies from 111 to 131 days.

**Natural disturbance.** Fire occurred on a 10 to 40 year rotation within much of the subsection, accounting for the dominance by upland conifers and quaking aspen-birch forests.

**Conservation concerns.** The number of year-round residents in this area is increasing as they convert small lake cabins into larger year-round homes. Near-



shore habitat is being lost at a rapid pace, which negatively affects fish and wildlife

## Hardwood Hills Subsection

The Hardwood Hills Subsection, part of the Eastern Broadleaf Forest Province, runs through the heart of the Mississippi River flyway and central Minnesota. The Continental Divide splits this subsection; rivers to the north flow to Hudson Bay, and rivers to the south, to the Mississippi. The subsection contains numerous lakes, more than 400 greater than 160 acres and many smaller lakes. Wetlands, prairie potholes, and kettle lakes exist throughout the area. Before settlement by people of European descent, vegetation included maple-basswood forests interspersed with oak savanna, tallgrass prairie, and oak forest.

Currently much of this subsection is farmed. While many wetlands have been drained, many potholes remain and provide habitat for waterfowl and shorebirds. Important areas of forest and prairie exist throughout the subsection, but they are small and fragmented. About 15 percent of the subsection is forested. Other significant land uses are tourism and outdoor recreation, especially around lakes.

**Landform.** Ice stagnation moraines, end moraines, ground moraines, and outwash plains are major landforms present in this subsection. Kettle lakes are numerous, both on moraine and outwash deposits. Parent material is primarily calcareous glacial till and outwash sediments. The glacial till is calcareous loamy sediment deposited by the last major glaciation (Wisconsin age).

**Hydrology.** The Alexandria Moraine forms a high ridge that is the headwaters region of many rivers and streams flowing east and west. The drainage network is young and undeveloped throughout this subsection. Major rivers include the Chippewa, the Long Prairie, the Sauk, and the Crow Wing rivers. The Mississippi River forms a portion of the east boundary. The majority of the many lakes in this subsection are found on end moraines and pitted outwash plains.

**Bedrock Geology.** There are 100 to 500 feet of glacial drift covering most of the bedrock in this subsection. The thickest drift is in the northwestern half. Middle Precambrian granitic bedrock is locally exposed in the southeast, along the Crow River. Bedrock underlying the subsection is diverse. Cretaceous shale, sandstone, and clay and Lower Precambrian granite, meta-sedimentary and metaigneous gneiss, schist, and migmatite underlie the southern half. To the north are metasedimentary rocks, iron formation, schist, and metavolcanic rocks.



**Climate.** Total annual precipitation ranges from 24 inches in the west to 27 inches in the east. Growing season precipitation ranges from 10.5 to 11.5 inches. The growing season ranges from approximately 122 days in the north to 140 days in the south.

**Natural disturbance.** Fire was important in oak savanna development. Windthrow was common in the sugar maple-basswood forests. Tornadoes and other high wind events also created natural disturbances.

**Conservation concerns.** Increased lakeshore development and wetland loss, in addition to increasing fragmentation of forest and prairie habitat, are concerns in this subsection.

### **Red River Prairie Subsection**

This subsection is part of the Prairie Parkland Ecological Province. The Red River of the North forms the western boundary of the subsection and of Minnesota. The former range limit of what was once tallgrass prairie forms the eastern boundary. Wet prairies were an important habitat in this subsection. The dominant landform is the large, flat, lake plain of Glacial Lake Agassiz, and associated landforms including beach ridges and sand dunes.

Rich soils deposited from Glacial Lake Agassiz make this subsection highly desirable for agriculture. The Agassiz beach ridges include a significant proportion of the state's remaining prairie acres, half of which are protected in preserves. Most of the remainder of the subsection has been drained using tile and ditching for row crop production. Less than 1 percent of former prairie remains, and remnant patches are often too small to be fully functional, due to the altered surrounding landscape.

**Landform.** The major landform is a large lake plain (Glacial Lake Agassiz). Minor landforms include a till plain, beach ridges, sand dunes, and water-reworked till. The greatest depth of lake laid sediments is present along the Red River, which forms the west boundary. Lacustrine origin sediments thin to the east, where glacial till was leveled and reworked with little sediment deposition. Topography is level to gently rolling. There is some steeper topography along drainages and adjacent to Lake Traverse.

**Hydrology.** This subsection is drained by the Red River, which flows north into Canada. The drainage network is minimally developed and rivers and streams meander extensively. Flooding is common in early spring and can cause major problems due to the level topography. Frozen conditions to the north can cause water to back up and flood large areas. There are few lakes present. Lakes are most common on a till plain in the southeast and characteristically, are shallow and perched.





**Bedrock Geology.** Throughout the subsection there are 200-400 feet of glacial drift overlying bedrock. Glacial drift is underlain by Precambrian bedrock in the east. The western part is underlain by Cretaceous, Ordovician, and Jurassic sedimentary bedrock. Sedimentary bedrock exposures along the shores of Lake Traverse in the southwest contain many fossils.

**Climate.** Total precipitation ranges from 21 inches in the northwest to 23 inches in the east, with roughly 40% occurring during the growing season. The growing season ranges from 111 to 136 days and is longest in the south. The climate of the subsection is influenced by Pacific Maritime, Gulf, and Polar air masses; the polar air mass has more regular impact upon this subsection than does the Gulf air mass.

**Natural disturbance.** Fire, drought, and annual flooding are important. High wind events (tornados and straight-line winds) are also common. Historically, bison grazing and ant activity caused important modifications of the vegetation and soils respectively.

**Conservation concerns.** Remnant patches of prairie are often too small to be fully functional, due to the altered surrounding landscape. Some prairie remnants that are not protected in preserves are enrolled in conservation programs, but many have no formal protection and are subject to further agricultural development or mining for construction aggregates. Dams and channelization disrupt aquatic connectivity and degrade habitat along rivers. The growth of cities such as Fargo-Moorhead compounds current concerns regarding water quantity and quality.

## Geology

Thick glacial drift covers bedrock throughout all three subsections of the trail corridor. The eastern half of the trail corridor, extending through Detroit Lakes was shaped by glacial processes that created a landscape of rugged relief, poor drainage, and numerous lakes. The broad belt of lakes that runs through this area (primarily in the Hardwood Hills ecological subsection) are part of the Alexandria Moraine, a large terminal moraine that forms an arc 10 to 20 miles wide and nearly 200 miles long through West Central Minnesota.<sup>6</sup>

The glacial moraine area can be characterized as rolling prairie, with scattered areas of sharply rolling hills interspersed with lakes, ponds, wetlands and bogs.

The Alexandria Moraine Complex consists of stagnation moraines. These stagnation moraines formed at the outer edges of a glacial lobe. There are also

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<sup>6</sup> Sansome, Constance. *Minnesota Underfoot*. Voyageur Press, 1983.



some smaller areas of stagnation moraine in the eastern half of the county. Stagnation moraine landscapes have a complicated pattern of soil materials. Although they are mostly made up of glacial till, some are local deposits of outwash and water-laid sediments. The moraines are typically the highest in elevation, have the greatest relief, and are commonly hilly. The Smoky Hills State Forest exemplifies this landscape. Many small to large ice-block basins in stagnation moraines that now contain lakes or marshes. Ice-walled lakes formed when pits in the stagnant ice on the Alexandria Moraine filled with water-laid sediments. Later, as the ice melted, the surrounding landscape collapsed and the lake bottom became what is now the hilltop<sup>7</sup>

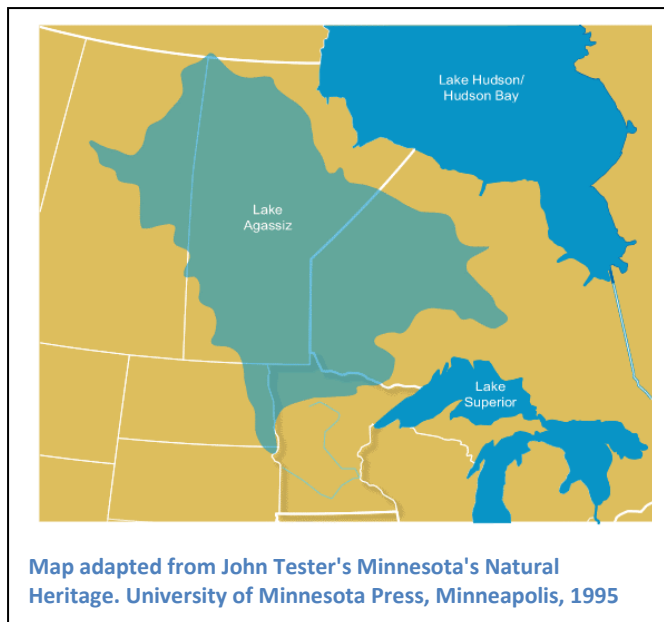
The trail corridor in Clay County crosses an extremely flat landscape with almost no topographical diversity – relief is less than 10 feet. This area is known as the Glacial Lake Agassiz plain, once a huge lake bottom. The lake was formed behind the topographic divide near the North Dakota and South Dakota border when the glaciers melted approximately 12,000 years ago, and covered the region until approximately 3,000 years ago. At its maximum extent, the lake covered 123,500 square miles and had a maximum depth of about four hundred feet. The map below illustrates the approximate area covered by Glacial Lake Agassiz.

Fine silt and clay washed into the lake bottom, creating the flat fertile plain in western Clay County. A breach in the moraine damming the lake formed an outlet, giving rise to the Glacial River Warren. This breach occurred near present day Browns Valley. The wide deep valley of the Minnesota River, (up to five miles wide in some places), is evidence of the size and power of Glacial River Warren. About 8,500 years ago the drainage shifted north to Hudson Bay.

The Red River Valley in eastern North Dakota and northwest Minnesota was covered by the lake, including western Clay County. Wave action created sand beaches around the shore, which continued to form as lake levels changed. These beaches now exist as parallel ridges running north and south through the middle of Clay County, composed of sand, gravel, cobbles and boulders and marked by a ridge or rise generally from 5 to 25 feet high. Beach ridges can be seen in and around Buffalo River State Park; they are most visible when approached from the lake (west) side.

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<sup>7</sup> Clayton and Cherry, 1967, in *Otter Tail County Soil Survey*, <http://www.co.otter-tail.mn.us/gis/soilsurvey07geologic.php>



## Water Resources and Fisheries

The variety of water resources along the Heartland State Trail Extension will be highlights of this trail. Lakes, wetlands, rivers, and trout streams are all located along the trail corridor. These water resources are scenic amenities, educational resources, and provide additional recreational opportunities for trail users such as fishing, canoeing, kayaking, boating, and swimming.

In addition to creating opportunities for the trail, these water resources also present constraints to trail development. The construction of bridges increases costs. When siting the trail, wetlands must first be avoided, then the impact minimized, and mitigated. These actions can require additional costs.

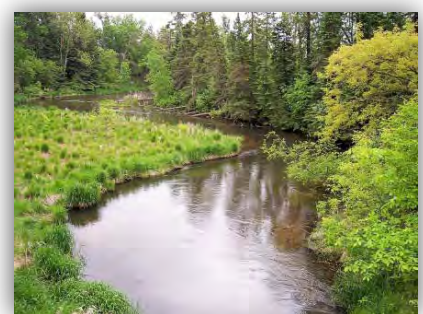
## Watersheds

The trail corridor crosses two major river drainage basins: the Upper Mississippi and the Red River of the North. The Continental Divide between these drainage basins runs north-south across the eastern third of Becker County, just west of Wolf and Shell lakes and east of Toad Lake. The Shell River watershed is part of the Mississippi drainage basin, which ultimately flows into the Gulf of Mexico, while the Otter Tail and Buffalo River watersheds are part of the Red River drainage basin, which flows north into Hudson Bay.

## Major Rivers

### *Straight River*

The Straight River rises in the White Earth Indian Reservation and Two Inlets State Forest, approximately six miles northeast of Pine Point in northeastern Becker County. It flows initially southeastwardly, passing through Straight Lake,



The Straight River

then east-southeastwardly into southwestern Hubbard County. It flows into the Fish Hook River in Hubbard Township, approximately four miles south of Park Rapids.

The Straight River is fed by springs which provide water cold enough to support an abundant trout population, and is known in sport fishing for catches of brown trout exceeding twenty inches in length. The river formerly supported a population of brook trout which declined due to rising water temperatures. The DNR has been working to monitor irrigation activities of agricultural operations in the river's watershed, which may threaten the springs feeding cold water to the river.

#### *Otter Tail River*

The Otter Tail River is 196 miles in length. It begins in Elbow Lake in Becker County, and passes through a number of lakes and the cities of Frazee, Perham and Fergus Falls as it flows westward before joining with the Bois de Sioux River to form the Red River of the North at Breckenridge. The river is a Minnesota Water Trail and, like the proposed Heartland Extension, runs through a diverse series of ecosystems, from coniferous forest to prairie.

#### *Buffalo River*

The source of the Buffalo River is Tamarack Lake in Tamarac National Wildlife Refuge. The river is 133 miles in length. It flows west through Hawley and Georgetown and through Buffalo River State Park before emptying into the Red River near Georgetown.

#### *Red River of the North*

The Heartland Extension State Trail will end with a connection to the Red River of the North in Moorhead. The Red River meanders 550 miles from its source in Breckenridge, Minnesota (where the Otter Tail River joins the Bois de Sioux River to form the Red) north to Lake Winnipeg in Canada. The river is designated as a Minnesota Water Trail for a distance of 394 miles along much of the Minnesota/North Dakota border.

The average slope of the Red River is just one-half foot per mile, which makes the Red a slow-moving, easily navigable river. However, high winds have been known to create whitecaps. It features channel widths of less than 100 feet to more than 500 feet at its northern reaches. At bank-full conditions, average depths vary from 10 to 30 feet. Its flow can be widely fluctuating. Devastating floods may be associated with summer rain storms and spring thaw.



The Buffalo River near Glyndon at high water



The Red River in Moorhead

## Major Lakes

The majority of lakes in the corridor are concentrated in the central portion. There are almost no lakes in the western third of the corridor (west of Buffalo River State Park).

### *Straight Lake*

Straight Lake is located in eastern Becker County, adjacent to the town of Osage. The lake is formed by a dam on the Straight River that maintains the lake about 13 feet above its natural level. Straight Lake has a surface area of 423 acres and a maximum depth of 63 feet. It is classified by the DNR as a Recreational Development Lake<sup>8</sup> and by the PCA as mesotrophic (moderate nutrient levels) with moderate clarity as measured by a mean summer Secchi depth reading of 11.5 feet (2009). There is a DNR public access located at the south end of the lake. Straight Lake has good walleye and northern pike populations and is a very popular lake for panfishing. The south end of the lake ("Mill Pond") is a popular location for ice fishing.

### *Wolf Lake*

Wolf Lake is a 1,445-acre, shallow lake in eastern Becker County that experiences low dissolved oxygen levels during most winters. It is classified by the DNR as a Natural Environment lake<sup>9</sup>.

Fish communities are dynamic in all lakes and streams, constantly changing due to weather patterns, habitat alterations, stocking, fishing pressure and many other influences. In Wolf Lake, winterkill greatly increases the intensity of these fish population shifts. Historically, the lake has been known for "boom or bust" fishing, depending upon the amount of time since the most recent fish kill.

A pump and baffle aeration system (purchased by the DNR) is cooperatively operated each winter by a local family and sportsmen's club. The aeration system provides a refuge area for fish when dissolved oxygen levels become critical. However, winterkill may still occur under extreme conditions.

Northern pike and black bullhead, two species able to tolerate low dissolved oxygen, have survived and thrived in Wolf Lake. Walleye, on the other hand,



Wolf Lake

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<sup>8</sup> **Recreational Development Lakes** usually have between 60 and 225 acres of water per mile of shoreline, between 3 and 25 dwellings per mile of shoreline, and are more than 15 feet deep.

<sup>9</sup> **Natural Environment Lakes** usually have less than 150 total acres, less than 60 acres per mile of shoreline, and less than three dwellings per mile of shoreline. They may have some winter kill of fish; may have shallow, swampy shoreline; and are less than 15 feet deep.

were not found in the lake before stocking began during the 1980s, and the population is still very low. A DNR public water access is located at the eastern end of the lake, close to the potential trail alignments.

#### *Toad Lake*

With a surface area of about 1,666 acres, Toad Lake is among the top 20 large lakes in the Otter Tail River Watershed. It has an elongated basin with a north-south orientation. Maximum water depth is 29 feet, and about 34 percent of the lake is less than 15 feet deep. Shallow zones include the north and south ends of the lake and several bays along the east and west shores.

Toad Lake is classified as a Recreational Development lake. It is considered a eutrophic (nutrient-rich) lake with moderate clarity as measured by a mean summer Secchi depth reading of 9.7 feet between 1988 and 2004 (MPCA 2005).

#### *Height of Land Lake*

Height of Land is a large (3,520 acre) shallow lake located just north of TH 34 near County Highway 31. It is classified by the DNR as a Recreational Development Lake and by the PCA as eutrophic. Water clarity is low, with a mean summer Secchi depth reading of 5.3 feet. The lake is relatively lightly developed, and much of the north shore is part of the Tamarack National Wildlife Refuge. It is subject to periodic winterkills. Height of land has experienced changes in its fish community in response to these winterkill events. Bullheads, northern pike and yellow perch have generally survived quite well; but severe kills, such as the one in early 1996, mostly eliminated walleye, bass, and panfish populations. Walleye fry and other fish are stocked during odd-numbered years and after winterkill occurs. There are four public access sites on the lake, including a DNR access on the southeast shore, and an active lake association.

#### *Detroit Lake*

Detroit Lake is 3,067 acres in area with a maximum depth of 82 feet. It is divided into two bays, Big and Little Detroit Lake, by a point of land. It is classified as a General Development lake<sup>10</sup>, reflecting its level of shoreland development. The lake has a variety of fish habitats and the fish community reflects that diversity. This fishery has included warm water species like

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<sup>10</sup> **General Development Lakes** usually have more than 225 acres of water per mile of shoreline and 25 dwellings per mile of shoreline, and are more than 15 feet deep.



bullheads and panfish, coldwater species like walleye, and even coldwater species like tullibee. Coldwater fish species require both cool temperatures and good levels of dissolved oxygen and, when both are not present, there is often a die-off of those species. Detroit Lake is classified as a eutrophic lake by the PCA, with a mean summer Secchi depth reading of 10 feet.

Two potential trophy species are also present in these waters. Leech Lake strain muskellunge were first stocked in Detroit Lake in 1989. Fishing opportunities now exist in this lake for catching muskies over fifty inches long and weighing well over thirty pounds. Recent publicity and excellent fishing have made this lake a very popular destination for muskie anglers throughout the state and region.

A century ago, Detroit Lake was known to harbor lake sturgeon weighing over 100 pounds. Historical accounts from the Detroit newspaper document angler catches of these giants in the late 1800's and early 1900's. Stream fragmentation (dam building), over fishing, and water quality degradation resulted in the loss of this long-lived and slow maturing fish species from Detroit Lake and the entire Red River watershed. Several steps have been taken to reverse this condition and restore the fishery, including modifications of dams to make them passable by fish, various water quality improvements, and restrictive fishing regulations. In addition, lake sturgeon reintroductions began in Detroit Lake and a few other Red River watershed locations in 1997 and continue in 2009.

#### *LaBelle Lake*

East LaBelle is a relatively shallow, fertile, prairie lake located in western Becker County along the northeastern outskirts of Lake Park. The lake's fish community is typical of many lakes that winterkill occasionally. For the most part, fish growth rates are average or faster. Like most other shallow prairie lakes, East Labelle is classified as a Natural Environment lake.

### **Water Resources Recommendations**

***Recommendation 1:*** Minimize trail development and maintenance impacts to adjacent water resources through the use of mulching, geo-textiles, silt screens and seeding to establish vegetation.

***Recommendation 2:*** Strive to limit water crossings and obtain permits for any needed crossing. Bridges should be designed for conveyance of flood flows and to accommodate existing or future water recreation.

***Recommendation 3:*** Create angling and education opportunities where the trail intersects lakes and rivers that provide fishing opportunities.

**Recommendation 4:** Assess trail-river and lake connections as to their suitability for development of “fishing pads” that promote fishing opportunities for people with mobility impairments.

## Presettlement Vegetation

Presettlement vegetation in the vicinity of the proposed trail corridor, based on Marschner’s *Original Vegetation of Minnesota* map, consisted of the following types, shown in the map on the following page.

In the **Pine Moraines and Outwash Plains Subsection**, jack pine, in a mix with northern pin oak, was the most common species on excessively drained portions of broad outwash plains. Large areas of the other landforms were dominated by aspen-birch and pine forests (mixed red and white pine). Red pine-white pine forests occupied the rolling to irregularly sloped end moraines. Mixed hardwood and pine forests, dominated by a diverse mix of northern hardwoods and white pine, were found in the most fire-protected areas at the northern and eastern edges of the subsection.

In the **Hardwood Hills Subsection**, irregular topography and presence of numerous lakes and wetlands provided a partial barrier to fire, resulting in woodland or forest rather than prairie vegetation. A mosaic of tallgrass prairie, aspen-oak land, and oak openings or savanna was present along the prairie boundary to the west. Mixed forests of oaks, sugar maple, basswood, and other hardwoods were present in fire protected sites farther east. Tallgrass prairie grew on more level terrain within the subsection.

In the **Red River Prairie Subsection**, tallgrass prairie and wet prairie were the dominant vegetation before settlement. The upland prairie was dominated by bluestems, Indian grass, and several other grasses. Wet prairie was dominated by bluejoint grass, cordgrass, cattails, rushes, and sedges. Narrow, forested floodplains were common along larger streams and rivers. Broader zones of woodland or brushland were common in “fire shadows” along streams; size and configuration depended on prevailing wind and stream alignment.

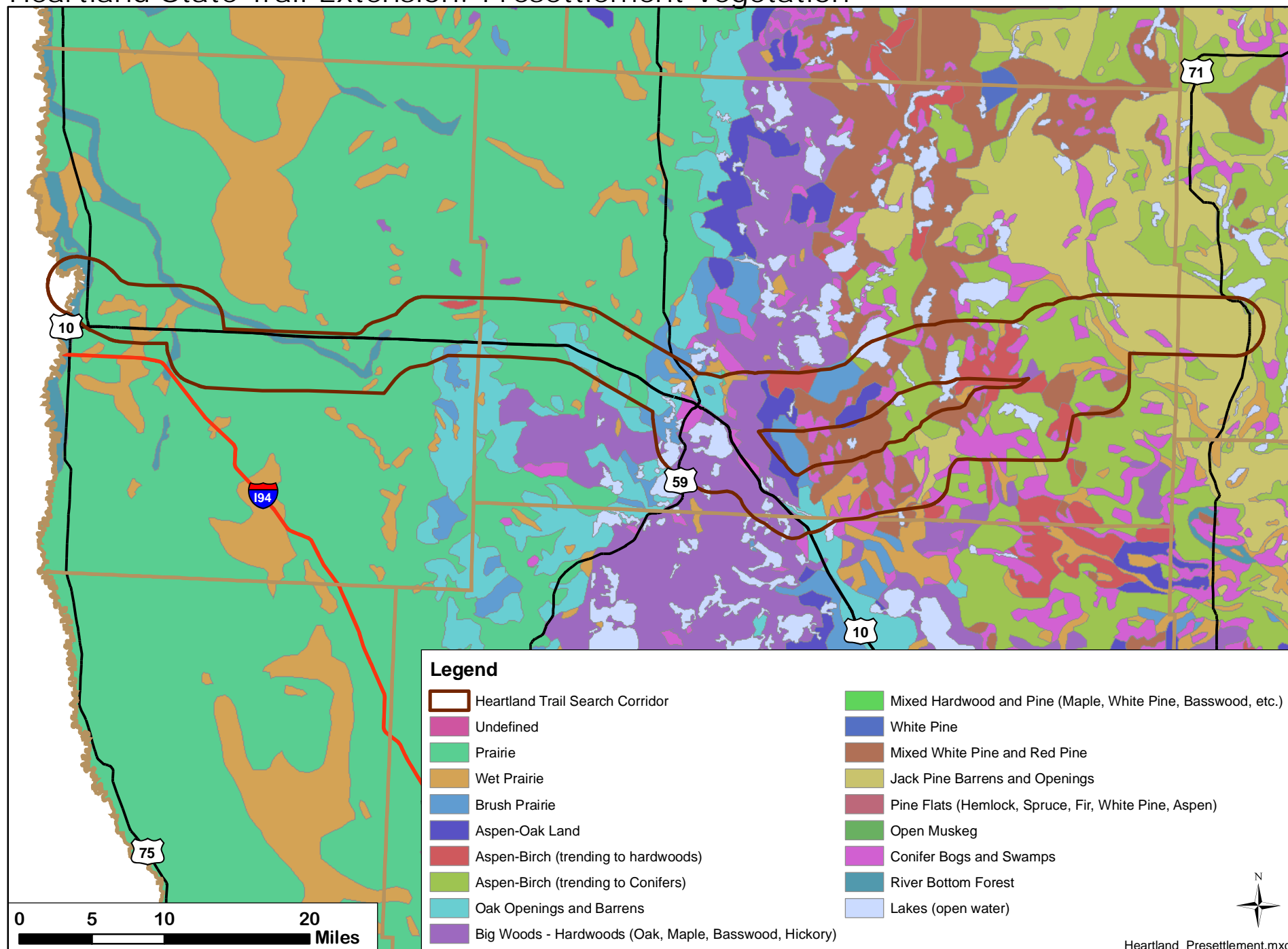
## Present Day Vegetation

Vegetation along the proposed trail corridor<sup>11</sup> reflects the transitions between ecological subsections, including coniferous forest, deciduous forest, cropland

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<sup>11</sup> Information on present day vegetation and wildlife is adapted from *Tomorrow’s Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife*. DNR, January 2006.

# Heartland State Trail Extension: Presettlement Vegetation



and grassland, interspersed with a variety of wetlands and tallgrass prairie remnants. The **Pine Moraines and Outwash Plains Subsection**, which extends approximately from Park Rapids to Frazee, is dominated today by cultivated fields interspersed with aspen/white birch forest, red oak, maple-basswood, and tamarack (wetland) communities.

The following plant communities and habitats are considered critical for this subsection because they contain species in greatest conservation need (SGCN) or have experienced the greatest decline since the 1890s:

- Forest – Upland Coniferous (Red-white pine)
- Shrub/Woodland – Upland (jack pine woodland)
- Wetland – Nonforest
- River – Headwater to Large

The **Hardwood Hills Subsection**, which extends from Frazee to the western edge of Detroit Lakes and the Lake Park area, is also dominated by aspen/white birch forest communities, interspersed with cropland, red oak, maple-basswood, and tamarack swamp.

The following plant communities and habitats are considered critical for this subsection:

- Grassland
- Forest – Upland Deciduous (Hardwood)
- Wetland – Nonforest
- Lake – Shallow
- Shrub/Woodland-Upland (Oak savanna, Brush prairie)
- Prairie
- River – Headwater to Large

West of Detroit Lakes, wooded hills gradually give way to the level plain of the **Red River Prairie Subsection**. This subsection is now intensively cultivated for row crops and less than one percent of the former prairie remains. The Agassiz beach ridges in this subsection do include a significant proportion of the state's remaining prairie acres, half of which are protected in preserves and SNAs. Most of the wetlands in this subsection were drained using tile and ditching for row crop production. Non-forested wetlands, which once constituted over 17 percent of this subsection, make up about 1.5 percent today; these include wet meadows and calcareous fens. Small areas of hardwood and aspen-oak upland forest are found along river valleys. Floodplain forest and hardwood swamps occur in this subsection, as well as lowland coniferous forest (tamarack and black spruce swamps).

The following plant communities and habitats are considered critical for this subsection:

- Prairie
- Forest – Lowland Deciduous

- Wetland – Nonforest
- River – Headwater to Large
- River – Very Large (Red River)

### **Vegetation Management Recommendations**

**Recommendation 1:** *Avoid threatened and endangered species and avoid or minimize any impacts to special concern species and high quality plant communities, as defined by the Minnesota County Biological Survey (MCBS) maps or additional resource inventories.*

**Recommendation 2:** *Develop a vegetation inventory and management plan for the trail.*

**Recommendation 3:** *Efforts will be made to avoid impacting wetlands. Wetlands will be inventoried and a wetland mitigation plan will be prepared to address any identified impacted wetlands.*

**Recommendation 4:** *Restore or, if necessary, reestablish or reconstruct native plant communities along the trail to minimize maintenance, minimize the use of pesticides, control invasive species, and increase natural species abundance and biodiversity for enhanced user experience.*

**Recommendation 5:** *Follow the guidelines established for invasive species management by Operational Order # 113. Consult with and follow the guidelines of the Division of Ecological and Water Resources in areas adjacent to Scientific and Natural Areas and water accesses.*

**Recommendation 6:** *Revegetate areas disturbed by construction or in need of rehabilitation with plant species native to the area by collecting seeds from remnant prairie communities or by purchasing local genotype seed from a certified vendor. Use locally-sourced native shrubs and trees in landscaping trail access sites and waysides.*

### **Wildlife**

The **Pine Moraines and Outwash Plains Subsection** is an important transition zone interspersed with lakes and wetlands valuable for wildlife. Featured wildlife includes bald eagles, gray wolves, sharp-tailed grouse, sandhill cranes, upland sandpipers, common terns, yellow rails, red-necked grebes, trumpeter swans, common loons, least darters, and eastern hognosed snakes. This is one of the most important areas in the state for red-shouldered hawks.

Eighty-nine Species in Greatest Conservation Need (SGCN) are known or predicted to occur within this subsection. Areas important for SGCN in or near the trail corridor include the Smoky Hills and Two Inlets state forests.



The **Hardwood Hills Subsection** is a wetland-rich transition zone between prairies and forest, intermingled with hundreds of lakes. There is a mix of wildlife, including trumpeter swans, prairie chickens, sandhill cranes, western grebes, great egrets, great blue herons, Forster's terns, bald eagles, creek heelsplitters (mussels), and least darters. The Hardwood Hills Subsection is also a major migratory corridor for forest birds and waterfowl.

Eighty-five Species in Greatest Conservation Need (SGCN) are known or predicted to occur within the Hardwood Hills. Areas important for SGCN in or near the trail corridor include Tamarac and Hamden Slough National Wildlife Refuges and numerous state Wildlife Protection Areas and federal Waterfowl Production Areas.

In the **Red River Prairie Subsection**, scattered remnant tracts of native prairie and riparian woodlands are home to a surprising variety of wildlife. These include greater prairie chickens, marbled godwits, loggerhead shrikes, poweshiek skippers, northern pocket gophers, and northern grasshopper mice. Lake sturgeon and black sandshells are found in the Red River.

Eighty-three Species in Greatest Conservation Need (SGCN) are known or predicted to occur within the Red River Prairie Subsection. Areas important for SGCN in or near the trail corridor include Buffalo River State Park and Bluestem Prairie Scientific and Natural Area, as well as many state Wildlife Protection Areas and federal Waterfowl Production Areas. SGCN species are also likely to be found in existing road ditches.

### **Birds and Birding Trail**

Because the proposed trail corridor spans the transition area between boreal forest, northern hardwoods and tallgrass prairie, a great diversity of bird species can be observed along the trail. Over 258 species of birds have been observed at the Tamarac National Wildlife Refuge, a short distance northeast of Detroit Lakes and Trunk Highway 34.

The proposed trail corridor includes many sites along the Pine to Prairie Birding Trail, a designated route 200 miles long with 43 birding sites. The birding trail is a cooperative effort of area communities and state and federal agencies, including the DNR and the U.S. Fish and Wildlife Service. It runs from Warroad south to the Fergus Falls area, including U.S. Highway 59 through Detroit Lakes. Sites along the trail include those listed in the table below, along with habitats and species to observe.

<b>Name of Site</b>	<b>Habitats Present</b>	<b>Species to Observe</b>	<b>Rare Species Observed</b>
Tamarac National Wildlife Refuge	Prairies, bogs, hardwoods and pine forests	Loon, trumpeter swan, wood duck, bald eagle, red-shouldered hawk, broad winged hawk, peregrine falcon, ruffed grouse, American wood-cock, winter wren, sedge wren marsh wrens, neotropical migrants including 25 species of warblers	White-winged scoter, great gray owl, black-backed woodpecker, boreal chickadee, Townsend's Solitaire, northern mockingbird, cerulean warbler, spotted towhee
Detroit Lakes Wetland Management District/Prairie-Marsh Trail and Boardwalk	Cattail marsh, wetland, prairie, woodlots	Waterfowl including trumpeter swan, northern harrier, common nighthawk, woodpeckers, flycatchers, sedge wren, eastern bluebird prairie sparrows, rose-breasted grosbeak, Baltimore oriole and finches	
Dunton Locks County Park	Lakes, marshes, woodlands	Common loon, red-necked grebe, waterfowl, woodpeckers, vireos, warblers finches great blue herons	
Hamden Slough National Wildlife Refuge	Prairie wetland ecosystem	Waterfowl including green-winged teal, canvasback, redhead, common goldeneye and ruddy duck; shorebirds when marshes are in drawdown; snowy owl (winter only); sedge and marshwrens; Nelson's sharp tailed sparrow, Henslow's sparrow, LeConte's sparrow, dickcissel; bobolink and yellow-headed blackbird.	Cattle egret, piping plover
Buffalo River State Park / Regional Science Center	Prairie and prairie riverine habitats	Upland sandpiper; bobolink; grassland sparrows; woodpeckers; finches and migrant passerines. The blue-gray gnatcatcher can be found at the park on the periphery of its Minnesota range.	

Bluestem Prairie SNA	Tallgrass prairie; wet prairie; sedge meadow; calcareous fen.	Greater prairie-chicken; sandhill crane; upland sandpiper; marbled godwit; loggerhead shrike; Henslow's sparrow; eastern meadowlark (at the western edge of its range).	
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## Species in Greatest Conservation Need

Species in Greatest Conservation Need (SGCN) have been identified for each ecological subsection in Minnesota. This category, which includes both plant and animal species, includes:

- Species whose populations are identified as being rare, declining or vulnerable in Minnesota, including species with legal protection status (federal or state endangered or threatened species);
- Species at risk because they depend upon rare, declining, or vulnerable habitats;
- Species subject to specific threats that make them vulnerable (i.e., invasive species);
- Species with certain characteristics that make them vulnerable (i.e., highly localized distribution);
- Species with stable populations in Minnesota that are declining outside of Minnesota.

Examples of SGCN in the three ecological subsections of the trail corridor include the red-shouldered hawk, Henslow's sparrow, prairie vole, eastern hog-nosed snake, caddisfly, and several freshwater mussel species. SGCN species are likely to be found in locations such as roadside ditches, and are not currently inventoried in a systematic way. All the threatened, endangered or special concern species discussed below and listed in Appendix B are considered SGCN. A complete list of SGCN by subsection is included in *Minnesota's State Wildlife Action Plan: Tomorrow's Habitat for the Wild and Rare*.<sup>12</sup>

## Threatened, Endangered or Special Concern Species

The Minnesota Natural Heritage Information database was used to identify species that are threatened, endangered or of special concern within the vicinity of the proposed trail corridor options. These species are listed in Appendix B. Threatened and endangered species are protected by state law, and protecting their habitat must be considered during trail planning, development and

<sup>12</sup> See <http://www.dnr.state.mn.us/cwcs/index.html>, Resources: SGCN by Subsection.

maintenance. Terrestrial plant communities and animal assemblages of concern are also listed in Appendix B.

### Wildlife and Habitat Recommendations

**Recommendation 1:** *Avoid threatened and endangered species and minimize any impacts to special concern species in trail planning, development and maintenance. Parks and Trails staff will keep current with Natural Heritage data, consult with regional plant ecologists and land managers, and perform on-the-ground surveys when an exact trail alignment is proposed.*

**Recommendation 2:** *Wildlife may be affected by the trail and recreational uses. Species with limited mobility, sensitive habitat requirements, or that are vulnerable to disturbance or exploitation require consideration in trail planning. Design considerations may include avoiding critical habitats, installing bridges or culverts in upland settings to provide wildlife travel ways, considering fish and wildlife needs when designing water crossings, managing and enhancing habitats along the proposed trail corridor, and using native species, consistent with the natural communities of the area, when re-vegetating areas disturbed by trail construction and maintenance.*

### Historical and Cultural Resources

In keeping with the varied landscapes and ecological settings of the trail corridor, the wooded eastern part of the corridor (Park Rapids through Detroit Lakes) developed differently than the prairies to the west. Logging dominated in the east, gradually giving way to agriculture, while the fur trade and agriculture dominated in the prairie regions.

#### Native American History<sup>13</sup>

The oldest burial site in Minnesota, dating to about 9,000 years ago, is near the town of Brown's Valley, on the headwaters of the Minnesota River. Stone knives and projectile points found throughout Minnesota suggest that hunters of the late Paleoindian Tradition pursued both the buffalo of the prairie and the deer and elk of the northern forests. A campsite in Itasca State Park from about 6,000 B.C. yielded stone tools and bones of a now-extinct species of bison. Between 1,000 and 500 B.C., people of the Woodland Tradition began to make pottery and to bury their dead in earthen mounds; many sites have been found dating from this period and later. People of this tradition made tools and

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<sup>13</sup> This discussion drawn from "A Short History of Clay County," <http://www.info.co.clay.mn.us/History> and Risjord, Norman, *A Popular History of Minnesota*. Minnesota Historical Society Press, 2005.

implements from copper, bones and antlers; the bow and arrow came into widespread use toward the end of this period.

By the time European explorers and fur traders reached the area, both Dakota (Sioux) and Ojibwe (Chippewa) Indians were living there. The Dakota were mostly plains dwelling people, hunting buffalo and living in buffalo-hide tipis for much of the year. The Ojibwe, an Algonkian-speaking tribe that had moved west from the Lake Superior region, built homes and canoes from birch bark and followed a seasonal round of hunting deer, fishing, and harvesting maple sugar and wild rice. The two groups were often in conflict. In 1825 a treaty negotiated by the U.S. government established a boundary between them at the Buffalo River. In 1851 the Dakota ceded their lands to the U.S. government at the Treaty of Traverse de Sioux in exchange for a reservation extending ten miles on either side of the Minnesota River. After the Dakota War of 1862, many Dakota were expelled or left Minnesota for Canada or western territories, although some later returned. In 1855 the Ojibwe also ceded their lands to the U.S. government, moving to reservations such as the White Earth Reservation in northern Becker, Clearwater and Mahnomen counties.

### **Exploration and the Fur Trade**

Fur traders were active throughout the Upper Mississippi region as early as the late 1700s and trading posts were established during the late 1700s and early 1800s. The Northwest Fur Company and Hudson's Bay Company traded for furs with Indians throughout the Northwest Territory and what is now western Canada. In 1802, two small trading posts were set up at White Earth and Shell Lake by the Northwest Fur Company. In 1832 Henry Rowe Schoolcraft and Ojibwe guide OzaWindib traveled up the Mississippi River in search of the headwaters, naming the source as Lake Itasca.

### **The Red River Ox carts**

The Hudson's Bay Company headquarters was located at Selkirk, near the present site of Winnipeg. Supplies were originally transported from England by ship to Hudson Bay then by boat up the Nelson and Red rivers, while furs were shipped out the same way.

By the 1820s, the settlement of St. Paul near Fort Snelling provided an access point via the Mississippi and Ohio rivers to supplies from the eastern United States, and people from the Selkirk settlement began trading with the St. Paul merchants. The Red River carts hauled goods from St. Paul to the settlements, returning loaded with furs. These wooden two-wheeled carts, although crudely made and noisy, were efficient – a single ox could pull a cart with a load up to 900 pounds. The carts were driven by the Metis people, descended from early white fur traders and native Cree or Ojibwe women.



Red River carts and drivers in camp. Photograph Benjamin Franklin Upton, 1858. Minnesota Historical Society



Several trail routes were established from Pembina, at the U.S.-Canadian border, to St. Paul. The northernmost, known as the Woods Trail, paralleled the Buffalo River as far as Hawley, with various branches extending through Audubon, Detroit Lakes and Frazee then continuing east to the Crow Wing River and south to St. Cloud.<sup>14</sup>

In 1859 the Anson Northrup was the first steamboat built on the Red River to transport goods north to Winnipeg, shortening the ox cart route and cutting costs of shipping. That year the Hudson's Bay Company built a steamboat landing and warehouse near the confluence of the Buffalo River and the Red River, a site they named Georgetown, and began shipping all goods through St. Paul. Goods hauled by oxcart from St. Paul were transferred to steamboats in Georgetown for rest of trip north, while furs returned on the southern trip.

### **Logging**

The forest of red and white pine in the eastern part of the trail corridor – Hubbard, Becker and Otter Tail counties – attracted loggers to the area in the 1860's and 1870's. Red pine and white pine stands were first harvested near Toad Lake and floated down the Toad River to the Otter Tail River to a sawmill in Fergus Falls. Pine was harvested near the Shell and Straight Rivers and floated down the Crow Wing River to Little Falls and Minneapolis. Park Rapids and Frazee developed as lumber milling and supply centers for the logging industry. Logs were stockpiled during the winter months on the ice near landings. In spring, after the ice broke up, logs were "boomed" down the lakes and rivers to the sawmills, which operated through the summer and fall. By the 1920s, most of the region's white pine, red pine and oak trees had been cut and very little virgin timber remained.

### **Railroads and Permanent Settlement**

A stagecoach line between St. Paul and Georgetown began bringing permanent settlers to the Red River Valley by the late 1860s. However, it was the completion of the Northern Pacific Railway line from Duluth to the Red River in 1871 that accelerated settlement, replacing the ox carts and the steamboats in the process. During next 20 years both the Northern Pacific and Great Northern Railways built branch lines throughout Clay County. Moorhead and the other towns in Clay County were all built along railroad lines.



Steamboat Selkirk at Fargo-Moorhead; uncompleted Northern Pacific Railway Bridge, 1871. Minnesota Historical Society.

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<sup>14</sup> Shepard, Lansing. "Retracing the Red River Trail." *Minnesota Conservation Volunteer*, May-June 2008. [http://www.dnr.state.mn.us/volunteer/mayjun08/red\\_river\\_trail.html](http://www.dnr.state.mn.us/volunteer/mayjun08/red_river_trail.html)

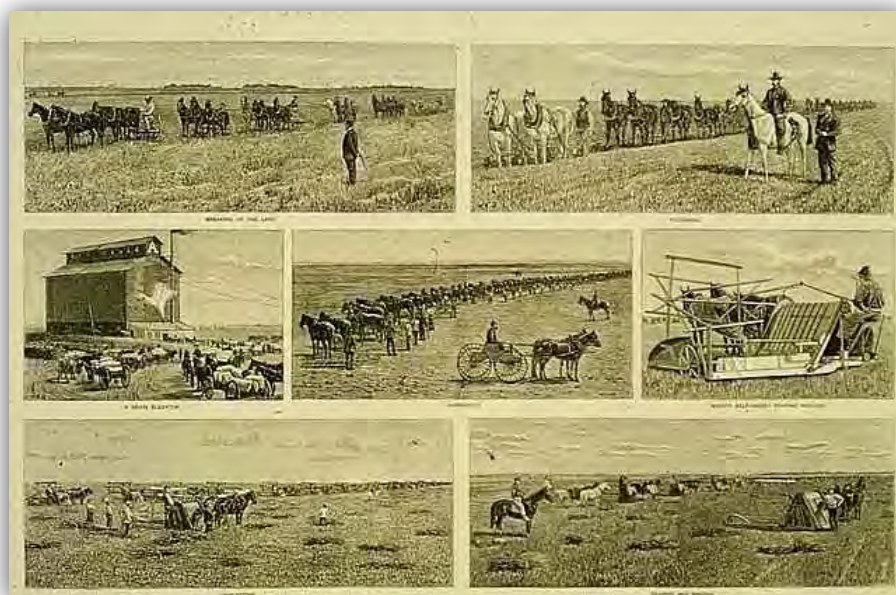
Detroit Lakes was founded in 1871, also along the Northern Pacific Railway, becoming a center for ice harvesting, logging and furniture manufacturing. Settlers in the Park Rapids area left the train at Verndale and traveled 50 miles or more to the Three Prairies: First Prairie around Hubbard, Second Prairie around Park Rapids, and Third Prairie around Osage/Ponsford. The Great Northern Railway finally came to Park Rapids in 1891. The Park Rapids and Leech Lake Railway Company extended the Great Northern east to Cass Lake in 1899, and today provides the railbed for the existing Heartland State Trail.

### Agriculture

Initially, settlers farmed small plots of river bottomland, where the soil was easily cultivated and wood was plentiful. Cultivation of the prairies came later, as it depended on the “prairie breaker,” a specialized plow operated by a two-man crew, to break through the thick roots of the prairie grasses.

Wheat was the first major crop harvested throughout Minnesota, and was harvested continuously until the productivity of the soils was reduced. Diversification occurred in the late 1800s as the price of wheat fell, land prices increased and soils were depleted. Potatoes, alfalfa, corn and cereal grains were farmed. Potatoes were a particularly successful crop; by 1920, Clay County was the second largest potato producing county in the nation.

The typical farm of the 1880s was 40-50 acres in size. The advent of steam-powered equipment in the 1880s drastically changed farming, allowing more land to be put into production. Wheat still remains a major crop in the Red River Valley, along with sugar beets, barley, soybeans, and a variety of other crops.



Farming in the Red River Valley. Wood Engraving, John Charles Dollman, 1880. Minnesota Historical Society.

## Tourism

Minnesota's "lakeshore summer-cottage belt" cuts across Park Rapids and Detroit Lakes. Both cities became popular resort destinations as early as the 1880s, as railroads opened up the lake country to visitors. Resort owners met summer tourists and fishermen at the depot and ferried them to the lakes. The establishment of Itasca State Park in 1891 also attracted visitors, who could take a stagecoach from Park Rapids to the new park. Tourism remains a mainstay of the lake region's economy today.

## Historic Districts and Structures

There are 22 structures, sites, or groups of structures listed on the National Register of Historic Places in or near the communities along the Heartland Trail Extension corridor. Both of the state parks within or near the corridor, Buffalo River and Itasca, are listed as historic sites because of their Rustic style of architecture, and significance related to prehistory, historical events and individuals. National Register properties and sites are listed in Appendix C.

## Demographics

As shown in the following tables, most of the cities and all the counties within the trail search area have experienced population growth in the past several decades. Detroit Lakes shows the highest level of population growth among the larger cities since 2000, while Moose Lake and Dilworth show the highest rates of growth among the smaller cities. It is important to note that even where population remains relatively stable, numbers of households have increased in the past twenty years as family sizes have declined, especially in cities.

City	1990	2000	2008 (est.)	% Pop. Change 2000-2008
Park Rapids	2,863	3,276	3,494	6.7%
Wolf Lake	35	31	50	61.3%
Frazee	1,176	1,377	1,352	-1.8%
Detroit Lakes	6,635	7,348	8,599	17.0%
Lake Park	638	782	825	5.5%
Audubon	411	445	491	10.3%
Hawley	1,655	1,882	1,921	2.1%
Glyndon	862	1,049	1,178	12.3%
Dilworth	2,562	3,001	3,684	22.8%
Moorhead	32,295	32,177	36,226	12.6%

County	1990	2000	2008 (est.)	% Pop. Change 2000-2008
Hubbard	14,939	18,376	18,823	2.4%
Becker	27,881	30,000	32,302	7.7%
Clay	50,422	51,229	55,900	9.1%

These trends point to the need to provide open space and recreational opportunities to serve growing populations while opportunities exist. Population growth trends coincide with growing interest in “close to home” trail opportunities, as shown in DNR trail studies.<sup>15</sup>

## Financial Impacts of Trail Development

Communities that support trails and respond to the needs of trail users have seen positive effects on their local economies. DNR trail studies indicate that tourists attracted to the trails use local facilities for eating, shopping, and lodging.

The DNR estimates that for five trails surveyed between 2007 and 2009, summer spending totaled nearly \$5 million.<sup>16</sup> Most of that spending (95% in total) comes from trail users who reside outside the local economy of the trail, and the spending represents “new” dollars to the local economy. Trail users who have traveled a long distance to the trail, not surprisingly, outspend local users by a factor of about 20 on a daily basis, primarily on food, travel, and overnight accommodations.

Trails also appear to increase property values and enhance the quality of life in the communities through which they run. Homes close to trails have become increasingly desirable. A number of studies of existing bike trails have shown that the average value of property near the trails is similar to or slightly above the value of other properties in the area.<sup>17</sup>

Trails also yield benefits that are highly significant but difficult to quantify. To the extent that trail use replaces motor vehicle use, it can result in monetary

<sup>15</sup> Kelly, Tim. “Status of Summer Trail Use (2007-09) on Five Paved State Bicycle Trails and Trends Since the 1990s.” Trail use increased on the Douglas Trail, which serves population centers in Rochester. On other state trails, trail use remained stable or showed the lowest declines near population centers.

<sup>16</sup> See previous reference. Trails surveyed in the 2007-2009 period were the Paul Bunyan, Heartland, Root River, Douglas, and Paul Bunyan-Bemidji State Park segment.

<sup>17</sup> For example, see “Home Sales Near Two Massachusetts Rail-Trails,” 2005.  
<http://www.americantrails.org/resources/adjacent/dellapennasales.html>

savings from lower air pollution, congestion, and oil imports. There is growing interest in the multiple benefits to public health that can result from the use of trails for outdoor recreation. Trail use has been shown to be valuable not only in combating obesity and related public health problems but also in reducing stress, improving mental health, and encouraging healthy lifestyles.

## 6. Implementation

### What Happens After the Master Plan is Finished?

Chapter 86A.09 of Minnesota Statutes requires that a master plan be prepared for state trails before trail development can begin – although planning, design, and land acquisition can take place before the plan is complete. Trail users and trail advocates need to recognize that the completion of a master plan is only one step in what typically is a long process of implementation.

Throughout the planning process for this trail extension, local trail advocates have asked for guidance as to how to implement the plan – that is, how to establish feasible alignments, contact landowners, and work with DNR regional staff on land acquisition. The process can be lengthy and complex.

The first generation of state trails in Minnesota were developed primarily on abandoned rail rights-of-way that state or local governments were able to acquire. Since that time, most of the remaining abandoned rail rights-of-way in the state have reverted to private ownership. The next generation of trails must cross a variety of public and private lands, making them much more challenging to develop than the rail-trails of the past.

DNR Parks and Trails staff work with individual landowners to acquire land or easements on a willing seller basis, keeping in mind that a series of acquisitions on adjoining properties will be needed in order to create a trail segment with a logical beginning and end. In other words, a trail segment should begin at an existing park or town center that can serve as a trailhead, preferably with parking and restroom facilities, and end at some type of destination – a city, a park, a wildlife preserve, or a historic site.

In this process, DNR acquisition and development staff frequently work with city and county governments, conservation organizations, and local trail interest groups to assess the feasibility of a particular trail alignment. Acquisition is done on a willing seller basis. The DNR strongly discourages local governments from using other means.

Land can be acquired or otherwise set aside for trail development through a variety of methods:

- A trail may be located on non-DNR public land, such as county or city-owned land, through a cooperative agreement.
- A local government or not-for-profit organization can acquire land from a willing seller and then sell it to the DNR.
- Local interest groups and/or DNR staff may make the initial contact with landowners, then DNR staff will assess the feasibility of a particular trail alignment and complete the land acquisition.



No matter which method is used, advance coordination with DNR staff is essential in order to ensure that the selected trail alignment is feasible to develop.

The following is a typical sequence of events in trail planning and development. However, the steps will likely overlap and the process will often require several rounds of feasibility assessment and landowner contacts.

1. **Complete the master plan.** The plan identifies a broad search corridor for the trail, within which one or more alternative alignments are identified. The intent of the plan is to provide flexibility while identifying the most feasible alignments, rather than “locking in” a specific route.
2. **Explore feasibility of each alignment.** Assess land ownership, road right-of-way width (is there enough room for a trail within the right-of-way?), connectivity, and physical conditions such as slope, wetlands and natural and cultural resources. The alignment must allow state and federal design guidelines and rules to be met, including trail width, shoulders, curvature, accessibility, etc. Therefore, it is important for local governments and trail groups to coordinate their efforts with DNR staff.
3. **Initial informal landowner contact.** It is often preferable for landowners to be contacted by local trail supporters rather than DNR staff. Landowner concerns frequently relate to privacy, safety and liability, and there are many information resources available to address these concerns.
4. **Formal landowner contact; complete acquisition process.** As mentioned above and with proper coordination, DNR or other entities may take the lead on land acquisition.
5. **Trail engineering and design.** The design process offers a final opportunity to assess feasibility, including the need to avoid sensitive natural or cultural resources and address constraints such as wetlands or steep slopes. Trail alignments may shift during the design process.
6. **Construction** on one or more segments, while the processes of negotiation and design continue on others.
7. **Ongoing maintenance and stewardship.** Trail associations often act as “eyes on the trail” to monitor conditions, notify DNR of concerns and volunteer on certain efforts. Local units of government may provide trail maintenance via a cooperative agreement.

#### BASIC DESIGN STANDARDS FOR PAVED, SHARED-USE STATE TRAILS

The following standards briefly highlight key points from the DNR publication *Trail Planning, Design and Development Guidelines*. See the full document for more details on the design of many types of trails.

- Pavement width: 10 feet is typical; 12 feet an option in high-use areas, 8 feet is an option where limitations exist or lower use is expected.
- Shoulders: 2 to 5 feet, depending on conditions such as side-slopes and hazards
- Maximum grade: 5% except where accessibility exceptions apply.
- 2% maximum cross-slope (the slope from one side of a trail to the other)
- Corners gently curved to meet standards rather than right angles
- 100' wide corridor width where possible to allow for buffers, storm water control and grading.

*Trail Planning, Design and Development Guidelines* is available through the DNR or Minnesota's Bookstore, [http://www.dnr.state.mn.us/publications/trails\\_waterways/index.html](http://www.dnr.state.mn.us/publications/trails_waterways/index.html)

8. **Orientation and Interpretation.** All trails are developed with traffic safety and directional signs. Some trails provide interpretive signs that highlight notable natural and cultural resources and landscape features. An interpretive plan may be developed to identify themes and features that will be interpreted.

### **Actions Local Governments Can Take to Support Trail Development:**

City and county governments can play an important role in trail development through their planning and development review processes, including the following:

- **Integrate the trail concept into community plans**, including comprehensive and land use plans, park and open space plans, and transportation plans.
  - Through the local park and trail plan, link the state trail corridor to local and regional trails; integrate it with local parks
  - Seek opportunities to meet multiple goals through trail development – i.e., to improve water quality, protect natural areas, provide educational opportunities, or provide additional transportation options.
- **Require park and trail set-asides.** Through their subdivision ordinances, cities and counties may require that developers dedicate a reasonable portion of land within a development to public use for such things as streets, utilities, drainage, and parks, trails and recreational facilities.<sup>18</sup> (If the set-aside is for a state trail, coordinate with DNR staff in advance.)
- **Work with DNR staff to seek funding for state trail acquisition and development.** State trails are typically funded by the State Legislature via bonding money or special appropriations, or through the Legislative-Citizen Commission on Minnesota Resources (LCCMR). Some federal grants are also eligible to be used in conjunction with state funding for development. Transportation enhancement project grants and other transportation funding sources may also be used for state trails. It is important for local government representatives to work closely with DNR regional staff in any pursuit of state trail funding.

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<sup>18</sup> Minn. Stat. §462.358 subd 2b (a) applies to cities; §394.25 subd. 7(c) to counties

- **Seek funding for local and regional trail connections.** Local and regional trails can be funded through a variety of sources, available through DNR and other agencies, including:
  - Parks and Trails Legacy Grant Program - [http://www.dnr.state.mn.us/grants/recreation/pt\\_legacy.html](http://www.dnr.state.mn.us/grants/recreation/pt_legacy.html)
  - Local Trail Connections Grant Program - [http://www.dnr.state.mn.us/grants/recreation/trails\\_local.html](http://www.dnr.state.mn.us/grants/recreation/trails_local.html)
  - Federal Recreation Trail Grant Program (also available for state trails) - [http://www.dnr.state.mn.us/grants/recreation/trails\\_federal.html](http://www.dnr.state.mn.us/grants/recreation/trails_federal.html)
  - Regional Trail Grant Program [http://www.dnr.state.mn.us/grants/recreation/trails\\_regional.html](http://www.dnr.state.mn.us/grants/recreation/trails_regional.html)
  - Transportation Enhancement Projects awarded by Mn/DOT with Federal Highway Administration funding (also available for state trails) <http://www.fhwa.dot.gov/environment/te/index.htm>
  - Safe Routes to School: funding for local trail connections through Mn/DOT <http://www.dot.state.mn.us/saferoutes/index.html>

## References

The following sources were used in the development of this master plan. Additional information was also drawn from DNR reports and databases, park and trail brochures, and other Department documents.

Becker County, Minnesota (2010). Parks, Trails, and Open Space Inventory. [http://www.co.becker.mn.us/dept/parks\\_recreation/rec\\_inventory.aspx](http://www.co.becker.mn.us/dept/parks_recreation/rec_inventory.aspx)

Clay County Historical Society (2010). A Short History of Clay County. <http://www.info.co.clay.mn.us/History>

Gilman, Rhoda, Carolyn Gilman and Deborah Stultz (1979). *Red River Trails : Oxcart Routes Between St Paul and the Selkirk Settlement 1820-1870*. St. Paul: Minnesota Historical Society Press.

Hart, John Fraser, and Susy Svatek Ziegler (2008). *Landscapes of Minnesota: A Geography*. St. Paul: Minnesota Historical Society Press

Kelly, Tim (2010). *Status of Summer Trail Use (2007-09) on Five Paved State Bicycle Trails and Trends Since the 1990s*. Minnesota Department of Natural Resources, Office of Management and Budget Services.

Minnesota Department of Administration, State Demographic Center (2007). Annual estimates of city and township population, households and persons per household, 2000 to 2009 (dataset).

\_\_\_\_\_ (2007). Annual estimates of county population, households and persons per household, 2000 to 2009 (dataset).

Minnesota Department of Natural Resources (2006). *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife*.

\_\_\_\_\_ (2007) *Trail Planning, Design and Development Guidelines*.

Ojakangas, Richard W. and Charles L. Matsch (1982). *Minnesota's Geology*. Minneapolis: University of Minnesota Press.

Risjord, Norman K. (2005). *A Popular History of Minnesota*. St. Paul: Minnesota Historical Society Press.

Sansome, Constance J. (1983). *Minnesota Underfoot: A Field Guide to the State's Outstanding Geologic Features*. Edina, MN: Voyageur Press.

Shepard, Lansing. "Retracing the Red River Trail." *Minnesota Conservation Volunteer*, May-June 2008. [http://www.dnr.state.mn.us/volunteer/mayjun08/red\\_river\\_trail.html](http://www.dnr.state.mn.us/volunteer/mayjun08/red_river_trail.html)

## APPENDIX A

### Meeting Summaries, 2008 Open Houses

An estimated 125 people attended these meetings (about 105 signed in). Most attendees were trail users and local and county government representatives who supported the trail concept; some landowners registered opposition. The meetings used an open house format. A series of posters and maps were displayed around the room with information and questions. Attendees could write their responses on the posters or fill out a questionnaire.

#### ***Meeting Dates and Attendance***

Place	Date	Sign-ins
Detroit Lakes	June 19, 2008	34
Frazee	June 24, 2008	31
Wolf Lake	June 25, 2008	14
Moorhead	July 8, 2008	15
Park Rapids	July 9, 2008	11

Thirty-one questionnaires were filled out; the vast majority of comments were positive.

Concerns related to the trail included the following:

- Maintenance and enforcement
- Preference for non-motorized recreation
- Concern re summer off-highway vehicle (OHV) use
- Uneven levels of use – need to connect more towns to trail
- Availability of restrooms, water
- Make it clear that trail development is a long process – often up to 20 years or more

Suggestions for trail development included the following:

- Develop segments with high ridership first to build support
- Create loop routes
- Smoky Trails State Forest segment – preserve hilly topography
- Minimize tree cutting
- Preference for an unpaved surface suitable for snowmobiles and other motorized OHVs
- Preference for paved surface for biking, crushed stone surface for walking, horseback riding, etc.
- Connections:
  - To Itasca State Park, with a connection to Bemidji
  - Park Rapids to Wadena

- To Vergas trail system
- To Pelican Rapids on TH 34
- Park Rapids to Sauk Centre
- Detroit Lakes to Fergus Falls and Central Lakes State Trail
- Moorhead to E. Grand Forks
- Provide drop boxes at trailheads for contributions to a trail fund
- Post signs with safety information
- Use volunteers to help monitor and maintain trail

Suggested trail alignments:

- Old Highway 10 corridor, Frazee – Detroit Lakes
- Old Highway 34 corridor in Osage area

## Meeting Summaries, 2010 Open Houses and Meetings

An estimated 110 people attended three open houses to review the draft plan. Additional meetings were held with Metro COG and Clay County trail interests, the City of Hawley and the Heartland Trail Association.

As in 2008, most open house attendees were trail users and trail advocates, as well as city and county staff and officials and area landowners. The maps included in this plan were displayed along with informational handouts and questionnaires. Twenty-two questionnaires and 5 on-line responses were received, and are summarized below.

### Meeting Dates and Attendance

Place	Date	Sign-ins
Detroit Lakes	October 27, 2010	31
Metro COG	October 28, 2010	10
Park Rapids	October 28, 2010	36
Frazee	November 4, 2010	10
Moorhead	November 4, 2010	31

### Summary of Questionnaire Responses

#### 1. Trail Vision (Draft)

Local trail advocates have assisted in drafting the following vision statement:

The Heartland Extension will link Minnesota's western neighbors and northwestern border towns to the Heartland State Trail. Trail users will experience three distinct landscapes of Minnesota comprised of diverse resources – hardwood forest, pine moraines and outwash plains, and tall grass prairie. Lakes, rivers, wetlands, prairie potholes, and numerous glacial landforms shape the landscapes along the trail. The trail will complement the Lake County Scenic Byway, adding a recreation amenity to the area and



enhancing tourism. Local residents will experience positive health and economic benefits from the trail.

*Would you suggest any additions, changes, or deletions to this statement?*

Suggestions:

- Agree with statement\*
- Great project
- Emphasize the economic benefits – bicyclists bring business
- Emphasize that the trail will cross the Laurentian Divide, where water flows either north or south
- Would delete the trail between Moorhead and Detroit Lakes – not as scenic; wind makes biking difficult; snowmobilers already use ditches in that area

*What do you think will be unique about this trail? Why would people come to ride this trail?*

- To see a new area of Minnesota; new perspective on “lake country”
- Beautiful countryside and small towns; flavor of rural Minnesota; welcoming communities
- Will connect to Fargo-Moorhead; only large metro area in state without a trail
- Bicycling is one of the most popular recreation activities
- Trail would be one of the most diverse in the state; would link two major water basins, three distinct biomes (Pine to Prairie), unique natural and scenic resources
- Number of lakes and water bodies; varied vegetation and bird life
- East-west connection would provide riders with hundreds of miles of trail options
- Will make snowmobiling better and safer in area; bring more people to town
- As one of the few trails not built on a railroad grade, it could provide more scenic variety and grade changes
- Safe scenic location for longer bike rides; area currently lacks this
- Heartland Trail is already well-known; would attract existing and new trail users to Detroit Lakes area

## 2. Trail Connections

The Heartland State Trail is part of the legislatively authorized State Trail System and will connect to the existing Paul Bunyan State Trail, to Buffalo River State Park, and to many local and regional trails.

*Do you have any ideas for other connections to this trail? (i.e. regional and local trails, parks)?*

- Cities along route; downtowns; county and city parks – encourage trail-related development\*
- Detroit Lakes: Veterans Memorial Park; City Park and beach; Dunton Locks trails
- City of Frazee – 14 parks, state water trail

- Smoky Hills and other state forests
- Amish community lands
- The Central Lakes State Trail
- Tamarac National Wildlife Refuge
- Connection across Highway 34 to Depot Park and Rice Park in Park Rapids
- Spur to Itasca State Park (long-range idea)
- Unique overnights/lodging facilities; environmentally friendly sites; partner with “Green Routes”
- North Country National Scenic Trail

### 3. Trail Alignment

The trail corridors illustrated on the maps represent search areas and potential alignments. Generally they follow road corridors. However, the goal is to find alignments that take trail users off road rights-of-way to provide more scenic and peaceful routes. The challenge is how to assemble trail alignments from willing sellers and other land managers to make these connections.

*Do you have any recommendations for location of the trail alignment?*

- Prefer southern route to Frazee and Old Ox Cart Trail (the Woods Trail lay close to the Highway 10 and rail corridors between Detroit Lakes and Frazee)
- Park Rapids, Wolf Lake, Frazee, Detroit Lakes\*
- Dunton Locks Park, Hamden Slough NWR, Audubon, Lake Park, Hawley, Glyndon, Moorhead\*
- Detroit Lakes to Cormorant Lake, then Hawley and Moorhead
- Along or through state-owned land – usually scenic and free
- As close as possible to Park Rapids downtown
- Avoid Highway 34 as much as possible\*
- Prefer scenic route away from highways
- Avoid main roads – safer
- Prefer northern route (Highway 34); consider Becker Co. Rd. 29 south to Frazee
- South and east of Big and Little Detroit Lake – heavily wooded areas, unmarked roads

*What are the significant points of interest should be connected by the trail, and why? (i.e. other trails, parks, town centers, schools, campgrounds, public lands,)?*

- Link all the town centers and connect to Central Lakes Trail
- Business districts for refreshments
- Connect schools to trail wherever possible
- Wolf Lake area and area between Osage and Snellman among the most beautiful in Minnesota
- Smoky Hills State Forest
- Smoky Hills to 4 Corners area in Rochert – lots of wildlife
- Acorn Lake (Frazee), Detroit Lakes, trailhead at Hwy 10 and County 3 in DL

- See Detroit Lakes' comprehensive park/trail policy and plan
- Detroit Lakes Veterans Memorial Park (Hwy 10/ Washington Ave.) and City Park
- Access under Highway 10/Railroad in DL
- Detroit Lake overlook – shoreline restoration
- Snowmobile connection to Itasca State Park

*Do you have any ideas for locations of parking lots, picnic areas, benches, overlooks, rest areas, and signs about the history or resources of the area?*

- Beech Road in Park Rapids (near Red Bridge Park)
- Osage, Snellman, Height of land Lake; between Wolf Lake and Park Rapids; Wolf Lake and Frazee
- Acorn Lake near Frazee
- Tie into Pine to Prairie Birding Trail sites
- Don't just focus on history – use this trail to celebrate the way "lake country" is working to save/restore our natural resources
- Frazee trailhead
- Dunton Locks County Park
- Warming spots with bonfire capabilities, as on some snowmobile trails
- Red River oxcart trail crossed the area; signs would be of interest

#### 4. Trail Uses

Bicycling, hiking/walking, dog walking, running/jogging, in-line skating/skate skiing, horseback riding, snowmobiling, education and interpretation are envisioned as uses of this trail. However, not all uses may be able to be accommodated for the entire length of the trail. Additional uses allowed or accessed by the trail may include activities such as canoe launching, fishing, nature observations, and hunting (in accordance with state rules and local ordinances).

*Would you delete any of these uses from the list? Which one(s)?*

- Snowmobiling\* – damages surface; care needed
- Hunting
- Horses if on paved trail; separate horse trail desirable\*
- Horseback riding due to safety issues; issues with droppings
- Will bikers, joggers, skaters, etc. pay a fee for trail use as snowmobiles do?

*Should any other uses be accommodated?*

- Wheelchairs
- Birding
- Opportunities for canoeing, kayaking
- No Off-Highway Vehicles (OHVs); no motorized vehicles except snowmobiles
- Cross-country skiing

*How do you plan to use the trail?*

- Bicycling\*

- Walking, hiking\*
- Running
- In-line skating\*
- Dog walking\*
- Snowmobiling\*
- Cross-country skiing\*
- Skate skiing if groomed; not if open to snowmobiles
- Education, interpretation
- Economic development stimulus

## 5. Neighbors' Concerns

*Do you have questions, issues, or concerns about being a neighbor to the trail?*

- The trail is an asset; would love to be a neighbor\*
- Neighbors along 190th Street in Park Rapids/ Township concerned about potential trail alignment on 190th Street – quiet street, concerned about noise, traffic, dogs\*
- None – I've biked a lot of trails and have never found anyone disrespecting private property
- This could increase home values and quality of life in towns

## 6. Trail Management

*Do you have any questions, comments, or concerns about trail maintenance?*

- Would local snowmobile clubs be able to work into GIA or how would grooming be done?
- Will funds be available and adequate to maintain the trail?\*
- How often will trails be swept to keep them free of loose gravel?
- Maintenance should be built into the budget. Enlist local bike/running organizations (and snowmobiles if appropriate) for trail monitoring and support
- Allow volunteer group to help keep trail clean
- Suggest an adopt-a-trail program where volunteers can monitor to aid in maintenance
- Vegetation maintenance is important
- Suggest an RV volunteer site be established as a trail host
- Consider ground-up asphalt as a better pavement choice; snowmobile trail alongside

*Do you have any questions, comments, or concerns about enforcement and safety? (typically, state, local and county law enforcement work together to ensure the safety of trail users/visitors/neighbors)*

- Trespassing is a concern, vandalism, harassment of livestock
- Current crossing of Hwy 34 at end of Heartland Trail is dangerous
- Bike lanes on Hwy 34 are narrow and typically used as right turn lanes
- All road crossings, however small, should be heavily marked
- Generally, walkers and bike riders are very courteous

- How will trails be patrolled and how often? Are there warning signs at intersections and driveways?
- Would like to see agreements in place early in the process
- Pavement will deteriorate –safety issue – why not consider alternative surfaces that are more environmentally friendly?

*Do you have any questions, comments, or concerns about natural or cultural resource management?*

- If state or county land or willing landowner is available, let the trail meander away from the road right-of-way wherever feasible
- Need rest areas, trailheads for garbage disposal

## **7. Information and Education**

Three types of information are developed along trails to provide trail users with a safe and enjoyable experience. They are:

- Trail user orientation (maps, “you are here” signs)
- Identification of services
- Trail rules and regulations and trail courtesies
- Interpretation of cultural and natural resources (if not already provided)

*Are there any informational or educational messages that you recommend be included in the development of trail information and education signs, brochures, and website?*

- The more the better, with maps
- Business signs where appropriate
- Identify mileage / mile markers; distance to next city\*
- Birding information, wildlife and plant habitat information\*
- Brochures promoting cities along the trail
- Natural resources – ecosystem changes, continental divide, waterways, forests
- Native American lands, activities (i.e., wild ricing lakes)
- Recreational (unique trout streams)
- Shuttle services should be listed on web site
- Trail signs and maps on the existing Heartland State Trail are great – keep up the great work!

## **8. Do you have any additional comments or questions? Did we miss any important topics?**

- Good job; thanks for being open to new ideas and suggestions\*
- Great project – trail connections important for a healthier population
- Project needs to keep moving; DNR needs to stay engaged
- Should move ahead on DL-Frazee segment ASAP – strong local support, few issues to resolve
- How is the trail paid for; who pays for maintenance; bicycle permits?
- Not in favor of using 190<sup>th</sup> Street for trail; too narrow

- Please do not consider allowing ATVs/OHMs/other OHVs to use the trail right-of-way. (On section of Heartland Trail between Park Rapids and Walker, ATVs come close to trail, gravel and dust are issues.)
- None of the identified towns along the trail seem to be “bike-friendly.” Suggest a media/outreach plan to ensure businesses and people welcome cyclists. Examples: bike racks outside restaurants, traffic management. Work with Explore MN, local bike clubs, tourism / chambers.
- Any idea when work will begin on the trail extension; date it will be open?



## APPENDIX B

### Responses to Public Comments

Many comments received support or confirm goals of the plan. Others are clearly in conflict with other comments or departmental policies. Others raise issues that DNR is aware of but needs to continue to work on, such as maintenance. All comments that emerged from public meetings and e-mails have been summarized in Appendix A.

#### **Preference for southern alignment through Frazee among the majority of commenters (2008 and 2010)**

We have not eliminated the northern route along Trunk Highway 34 between Park Rapids and Detroit Lakes, because the feasibility of the southern route had not been determined by the end of the planning process. However, the Frazee – Detroit Lakes segment continues to move ahead through design.

#### **Opposition from residents along 190<sup>th</sup> Street west of Park Rapids to the concept of a trail along that township road.**

This alternative was not eliminated, because portions of that route may be feasible, but the most likely route remains Trunk Highway 34.

#### **Emphasize economic benefits of a state trail. Identification of unique features of the trail.**

Added statements to trail goals regarding “attracting new visitors year-round.” Added “Laurentian Divide” to unique natural features of trail.

#### **Concerns regarding funding of trail.**

Implementation section of plan discusses funding sources for trail development, including bonding and transportation enhancements.

**Letter from The Nature Conservancy, 9/17/10** (concerning potential route for the trail along 17<sup>th</sup> Avenue through the Bluestem Prairie SNA. Concerns include:

- Concern that a paved trail into the park would cross SNA land and damage native prairie.
- Prospect of a paved trail along 17<sup>th</sup> Avenue, given the presence of good quality native prairie along roadsides. Mowing of shoulders would emulate the conditions of paved roads and the invasive species that go along with them.

#### **Responses:**

- Identified an alternative alignment north of Buffalo River State Park.
- Defined a route through Buffalo River State Park that would not cross SNA land.

- Snowmobiles would not be permitted on 17th Avenue or through SNA or park.
- If 17th Avenue alignment is selected, would explore various options – unpaved trail; vegetation management following invasive species guidelines, working closely with SNA and Ecological and Waters Division staff.

## APPENDIX C

### Natural Communities and Special Concern, Threatened, or Endangered Species

The following list of species is drawn from the database of the Natural Heritage Information System of the DNR, Division of Ecological and Water Resources, within or near (within one mile) of the proposed trail search corridor(s). Species are classified as follows:

- SPC** Special Concern
- THR** Threatened
- END** Endangered
- NON** A species with no legal status, but about which the Division of Ecological and Water Resources is gathering data for possible future listing

County / Common Name	Latin Name	Type	MN Legal Status
<b>Hubbard County</b>			
Sheathed Pondweed	<i>Potamogeton vaginatus</i>	Vascular Plant	<b>SPC</b>
Creek Heelsplitter	<i>Lasmigona compressa</i>	Invertebrate Animal	<b>SPC</b>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Vertebrate Animal	<b>SPC</b>
Least Darter	<i>Etheostoma microperca</i>	Vertebrate Animal	<b>SPC</b>
<b>Becker County</b>			
Humped Bladderwort	<i>Utricularia gibba</i>	Vascular Plant	<b>NON</b>
Marsh Arrow-grass	<i>Triglochin palustris</i>	Vascular Plant	<b>NON</b>
Narrow-leaved Water Plantain	<i>Alisma gramineum</i>	Vascular Plant	<b>NON</b>
Blunt Sedge	<i>Carex obtusata</i>	Vascular Plant	<b>SPC</b>
Rock Sandwort	<i>Minuartia dawsonensis</i>	Vascular Plant	<b>SPC</b>
Sheathed Pondweed	<i>Potamogeton vaginatus</i>	Vascular Plant	<b>SPC</b>
Thread-like Naiad	<i>Najas gracillima</i>	Vascular Plant	<b>SPC</b>
White Adder's-mouth	<i>Malaxis monophyllos var. brachypoda</i>	Vascular Plant	<b>SPC</b>
Widgeon-grass	<i>Ruppia maritima</i>	Vascular Plant	<b>SPC</b>
Sterile Sedge	<i>Carex sterilis</i>	Vascular Plant	<b>THR</b>
Creek Heelsplitter	<i>Lasmigona compressa</i>	Invertebrate Animal	<b>SPC</b>
Sandhill Crane	<i>Grus canadensis</i>	Vertebrate Animal	<b>NON</b>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Vertebrate Animal	<b>SPC</b>
Cerulean Warbler	<i>Dendroica cerulea</i>	Vertebrate Animal	<b>SPC</b>
Least Darter	<i>Etheostoma microperca</i>	Vertebrate Animal	<b>SPC</b>
Pugnose Shiner	<i>Notropis anogenus</i>	Vertebrate Animal	<b>SPC</b>
Red-shouldered Hawk	<i>Buteo lineatus</i>	Vertebrate Animal	<b>SPC</b>
Calcareous Fen (Northwestern) Type		Terrestrial Community	
Native Plant Community, Undetermined Class		Terrestrial Community	

Northern Dry Prairie Class	Terrestrial Community
Colonial Waterbird Nesting Area	Animal Assemblage

**Becker, Otter Tail counties**

Black Sandshell	<i>Ligumia recta</i>	Invertebrate Animal	SPC
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**Becker, Clay counties**

Trumpeter Swan	<i>Cygnus buccinator</i>	Vertebrate Animal	THR
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Dry Hill Prairie (Northern)	Terrestrial Community
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**Otter Tail County**

Fluted-shell	<i>Lasmigona costata</i>	Invertebrate Animal	SPC
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Bald Eagle	<i>Haliaeetus leucocephalus</i>	Vertebrate Animal	SPC
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**Clay County**

Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Vascular Plant	END
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Alkali Cord-grass	<i>Spartina gracilis</i>	Vascular Plant	NON
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Black Grass	<i>Juncus gerardii</i>	Vascular Plant	NON
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Low Milk-vetch	<i>Astragalus lotiflorus</i>	Vascular Plant	NON
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Macoun's Gentian	<i>Gentianopsis procera</i>	Vascular Plant	NON
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Short-beaked Arrowhead	<i>Sagittaria brevirostra</i>	Vascular Plant	NON
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Blanket-flower	<i>Gaillardia aristata</i>	Vascular Plant	SPC
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Clustered Broomrape	<i>Orobanche fasciculata</i>	Vascular Plant	SPC
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Drummond's Campion	<i>Silene drummondii</i>	Vascular Plant	SPC
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Hall's Sedge	<i>Carex hallii</i>	Vascular Plant	SPC
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Louisiana Broomrape	<i>Orobanche ludoviciana</i>	Vascular Plant	SPC
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Northern Gentian	<i>Gentiana affinis</i>	Vascular Plant	SPC
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Northern Singlespike Sedge	<i>Carex scirpoidea</i>	Vascular Plant	SPC
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Nuttall's Sunflower	<i>Helianthus nuttallii</i> ssp. <i>rydbergii</i>	Vascular Plant	SPC
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Oat-grass	<i>Helictotrichon hookeri</i>	Vascular Plant	SPC
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Plains Reedgrass	<i>Calamagrostis montanensis</i>	Vascular Plant	SPC
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Prairie Moonwort	<i>Botrychium campestre</i>	Vascular Plant	SPC
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Small White Lady's-slipper	<i>Cypripedium candidum</i>	Vascular Plant	SPC
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Uhler's Arctic	<i>Oeneis uhleri varuna</i>	Invertebrate Animal	END
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Black Sandshell	<i>Ligumia recta</i>	Invertebrate Animal	SPC
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Powesheik Skipper	<i>Oarisma powesheik</i>	Invertebrate Animal	SPC
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Regal Fritillary	<i>Speyeria idalia</i>	Invertebrate Animal	SPC
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Dakota Skipper	<i>Hesperia dacotae</i>	Invertebrate Animal	THR
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Garita Skipper	<i>Oarisma garita</i>	Invertebrate Animal	THR
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Henslow's Sparrow	<i>Ammodramus henslowii</i>	Vertebrate Animal	END
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American Bittern	<i>Botaurus lentiginosus</i>	Vertebrate Animal	NON
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Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>	Vertebrate Animal	NON
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Upland Sandpiper	<i>Bartramia longicauda</i>	Vertebrate Animal	NON
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Greater Prairie-chicken	<i>Tympanuchus cupido</i>	Vertebrate Animal	<b>SPC</b>
Marbled Godwit	<i>Limosa fedoa</i>	Vertebrate Animal	<b>SPC</b>
Plains Hog-nosed Snake	<i>Heterodon nasicus</i>	Vertebrate Animal	<b>SPC</b>
Plains Pocket Mouse	<i>Perognathus flavescens</i>	Vertebrate Animal	<b>SPC</b>
Prairie Vole	<i>Microtus ochrogaster</i>	Vertebrate Animal	<b>SPC</b>
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Vertebrate Animal	<b>THR</b>
Lake Erosion (Quaternary)		Other	
Aspen - (Cordgrass) Woodland		Terrestrial Community	
Dry Hill Prairie (Northern)		Terrestrial Community	
Dry Sand - Gravel Prairie (Northern)		Terrestrial Community	
Green Ash - Bur Oak - Elm Forest		Terrestrial Community	
Mesic Prairie (Northern)		Terrestrial Community	
Seepage Meadow/Carr		Terrestrial Community	
Seepage Meadow/Carr, Aquatic Sedge Subtype		Terrestrial Community	
Wet Brush-Prairie (Northern)		Terrestrial Community	
Wet Prairie (Northern)		Terrestrial Community	
Wet Seepage Prairie (Northern)		Terrestrial Community	
Willow - Dogwood Shrub Swamp		Terrestrial Community	

**SPC** Special Concern

**THR** Threatened

**END** Endangered

**NON** A species with no legal status, but about which the Division of Ecological and Water Resources is gathering data for possible future listing

## APPENDIX D

### Structures and Sites Listed on the National Register of Historic Places

The following sites on the National Register of Historic Places are located within or near the proposed trail corridor. These resources need to be considered in the location, design and interpretation of the trail.

#### Becker County

**Detroit Lakes City Park.** *Thirty-nine acre park established in 1897 and improved in 1935-37 by WPA; vital part of community recreational and social life and summer tourism industry.*

Washington Avenue and North Shore Drive

Listing Date: May 30, 2008

Date: 1897

Architect: Randolph, A. S., Wisted, T. A. and Sons, Works Progress Administration

Theme: Entertainment/Recreation

Historic Functions: Park

Current Functions: Park

**Detroit Lakes Carnegie Library.** *Prairie School library built in 1911, based on design by Wisconsin architects Claude and Stark.*

1000 Washington Ave.

Listing Date: March 16, 1976

Date: 1911

Style: Prairie School

Architect: Claude, Louis and Edward F. Stark

Theme: Architecture

Historic Functions: Library

Current Functions: Library

**Edgewater Beach Cottages.** *Tourist resort built in 1937-39 featuring rare stovewood construction.*

321 Park Lake Blvd.

Listing Date: March 15, 1989

Date: 1937

Style: Rustic

Architect: Wright, Frederick

Theme: Architecture, Entertainment/recreation

Historic Functions: Camp

Current Functions: Single Dwelling

**Graystone Hotel.** *Hybrid of city hotel and rural resort, built in 1916-17 to stimulate region's tourism industry.*

119 Pioneer St.

Listing Date: July 01, 1999

Date: 1916

Architect: Broomhall, Edward F., Minnesota Department of Highways

Theme: Commerce

Historic Functions: Hotel

Current Functions: Business, Multiple Dwelling



**Holmes Block.** *Brick commercial building built in 1892 by entrepreneur Elon Galusha Holmes as town's business, cultural, and mercantile center.*

710-718 Washington Avenue

Listing Date: July 19, 2001

Date: 1892

Style: Late Victorian, Queen Anne

Architect: Bjorquist, John L.

Theme: Commerce

Historic Functions: Business, Department Store, Financial Institution, Professional

Current Functions: Business

**Itasca State Park.** *Minnesota's oldest state park (est. 1891), site of Mississippi headwaters, with rustic-style log and stone buildings/structures built 1905-42.*

Listing Date: May 7, 1973

Style: Rustic

Theme: Archaeology, Conservation, Science, Prehistory

Historic Functions: Animal Facility, Cemetery, Outdoor Recreation, Single Dwelling, Village Site

Current Functions: Outdoor Recreation, Park

**Northern Pacific Passenger Depot.** *Brick depot built in 1908 to serve region's growing tourism industry.*

Listing Date: December 22, 1988

Date: 1908

Style: Spanish Colonial Revival

Architect: Northern Pacific Railroad

Theme: Transportation

Historic Functions: Rail-related

Current Functions: Rail-related

**Sargent, Homer E. and Rebecca, House.** *Queen Anne summer house built in 1885 by a Chicago railroad executive and his wife.*

1036 Lake Avenue

Listing Date: December 22, 1988

Date: 1885

Style: Queen Anne

Theme: Architecture, Entertainment/recreation

Historic Functions: Agricultural Outbuilding, Secondary Structure, Single Dwelling

Current Functions: Single Dwelling

## **Hubbard County**

**Hubbard County Courthouse.** *Classical Revival brick courthouse designed by M. E. Beebe and built in 1900 to house county government offices.*

3rd and Court Streets, Park Rapids

Listing Date: March 08, 1984

Date: 1900

Style: Classical Revival

Architect: Beebe, M. E.

Theme: Architecture, Politics/government

Historic Functions: Courthouse

Current Functions: Museum

**Park Rapids Jail.** *Brick jail designed by Fremont D. Orff and built in 1901 for joint village and county use.*

205 W. 2nd St., Park Rapids  
Listing Date: October 27, 1988  
Date: 1901  
Architect: Orff, Fremont D.  
Theme: Politics/government  
Historic Functions: Correctional Facility

**Shell River Prehistoric Village and Mound District.** *Village site and mounds at junction of two major travel routes, dating to late Precontact Period (A.D. 900–1650).*

Crow Wing Lake Twp.  
Listing Date: June 19, 1973  
Theme: Archaeology  
Historic Functions: Village Site  
Current Functions: Road-related (Vehicular), Unoccupied Land

## **Clay County**

**Bergquist, John, House.** *Log house built ca. 1870 by early homesteader.*

719 10th Ave. N., Moorhead  
Listing Date: May 07, 1980  
Date: 1870  
Style: Log  
Theme: Exploration/settlement  
Historic Functions: Single Dwelling

**Buffalo River State Park WPA/Rustic Style Historic Resources.** *Group of buildings and structures built by WPA workers in 1937, largely of local split stone.*

Off US 10, E. of Glyndon, Riverton Twp.  
Listing Date: October 25, 1989  
Date: 1937  
Style: NPS Rustic Architecture  
Architect: WPA  
Theme: Architecture, Entertainment/recreation, Politics/government  
Historic Functions: Outdoor Recreation, Park  
Current Functions: Outdoor Recreation, Park

**Burnham Building.** *False-front frame commercial/residential building typifying 1880s downtown Moorhead.*

420 Main Ave., Moorhead  
Listing Date: May 07, 1980  
Date: 1880  
Architect: Bayer, J. M. & W. H. Merritt  
Theme: Architecture, Commerce  
Historic Functions: Business, Single Dwelling  
Current Functions: Single Dwelling

**Comstock, Solomon G., House.** *Late Victorian frame home designed by Kees and Fisk and built in 1883 for business leader and politician.*

5th Ave. and S. 8th St., Moorhead  
Listing Date: December 30, 1974  
Date: 1883  
Style: Eastlake  
Architect: Kees & Fisk

Theme: Architecture, commerce, education, industry, politics/government  
Historic Functions: Single Dwelling  
Current Functions: Museum

**Fairmont Creamery Company.** *Brick industrial plant built in 1923 by company promoting agricultural diversification in Red River Valley.*

801 2nd Ave. N., Moorhead

February 10, 1983

Criteria: A

Date: 1923

Theme: Agriculture, commerce, industry

Historic Functions: Processing Site

**Federal Courthouse and Post Office.** *Classical Revival brick building designed by federal government architect Oscar Wenderoth and built in 1915.*

521 Main Ave., Moorhead

Listing Date: May 07, 1980

Date: 1915

Style: Classical Revival

Architect: Wenderoth, Oscar

Theme: Architecture, Politics/government

Historic Functions: Post Office

Current Functions: Government Office, Museum

**Huntoon, Lew A., House.** *English cottage-style house designed by Bertrand & Chamberlain and built in 1910 for director of Moorhead State Normal School.*

709 8th St. S., Moorhead

Listing Date: May 07, 1980

Date: 1910

Style: English Cottage

Architect: Bertrand and Chamberlain

Theme: Architecture, Education

Historic Functions: Single Dwelling

Current Functions: Single Dwelling

**Main Building, Concordia College.** *Classical Revival, brick-and-stone building constructed in 1906 as center of campus activity.*

S. 8th St., Moorhead

Listing Date: May 07, 1980

Date: 1906

Style: Classical Revival

Architect: Beebe, Milton M.

Theme: Architecture, Education

Historic Functions: College

Current Functions: College

**Park Elementary School.** *Classical Revival, yellow-brick neighborhood school built in 1900.*

121 6th Ave. S., Moorhead

Listing Date: December 22, 1988

Date: 1900

Style: Classical Revival

Theme: Education

Historic Functions: School

**Probstfield, Randolph M., House.** *County's oldest known residence, built in 1869 by early settler and agricultural entrepreneur.*

4555 Oakport St. N, Oakport Twp.

Listing Date: May 07, 1980

Date: 1869

Architect: Probstfiel, R. M.

Theme: Agriculture, Exploration/settlement, Politics/government

Historic Functions: Single Dwelling

Current Functions: Single Dwelling

**Saint John the Divine Episcopal Church.** *Shingled frame church with octagonal tower, designed by Cass Gilbert and built in 1898-99.*

120 S. 8th St., Moorhead

Listing Date: May 07, 1980

Date: 1898

Style: Shingle

Architect: Cass Gilbert

Theme: Architecture

Historic Functions: Religious Facility

Current Functions: Religious Structure